

K-BUS®





WR

WR

! k
! ! k ! ! !
/ k

KNXnet/IP

-
-
-
-
-
-

k

k KNX

k

k

EN 60 715

35

EIB

24~30V

k

/

!

!

!

!

k

13

F

!

!

!

k

!

!

!

!

!

k

5

➤

?

➤

?

➤

?

/

/

AC

k

➤

?

!

!

➤

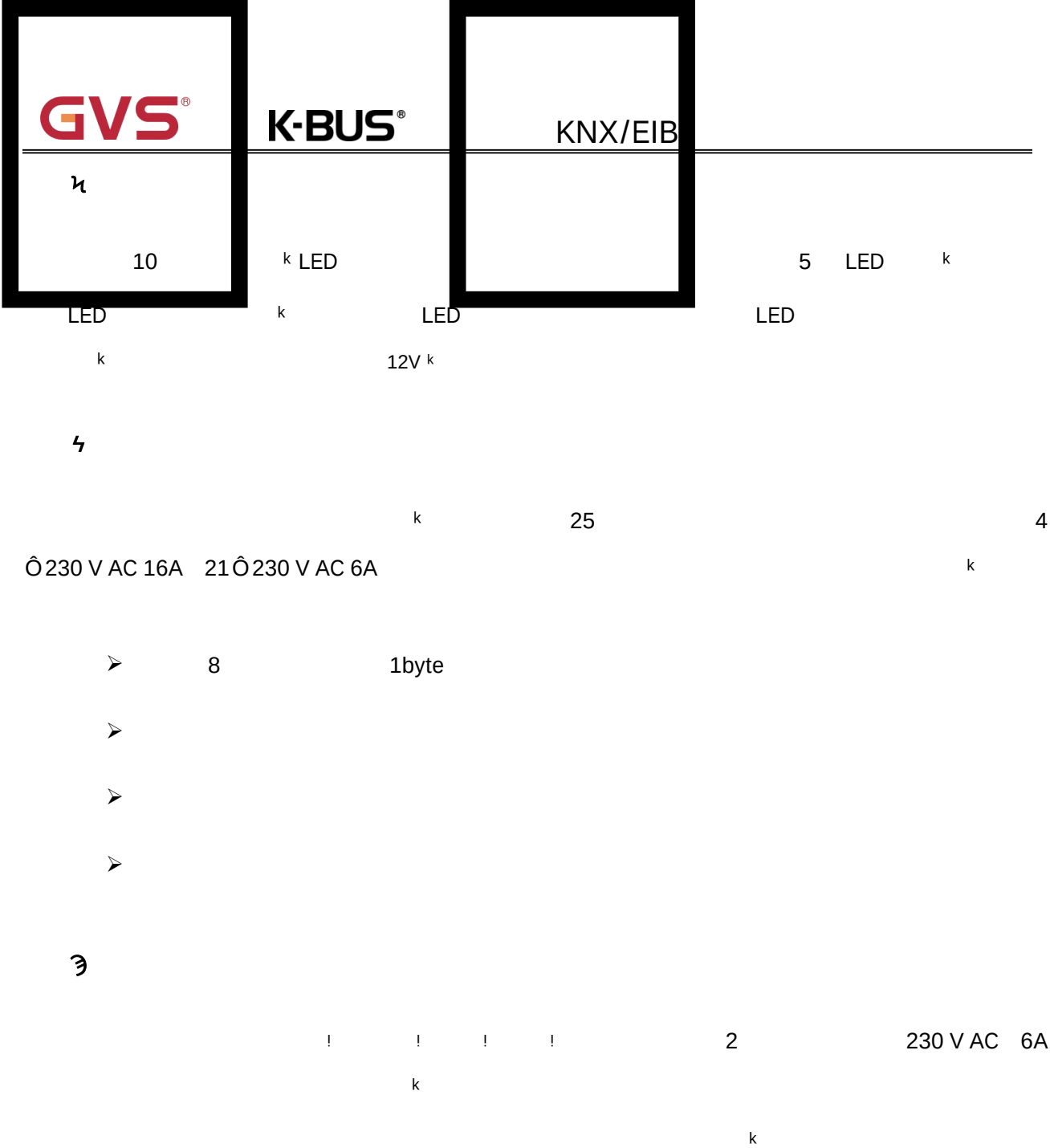
F

EIB/KNX

/

24V~230V

k





Blinds

Shutter



5

0-10V

k

0-10V

k



/



8

1byte



3

k

0-10V

!

k

15 ! 16

17

0-10V

28 k



1

2

3





K-BUS®

K-BUS®



W

2

4

0-10V

k

□ □ □ □ □ 18 □

q

PT1000

k

k

q

KNXnet/IP

5

k

KNXnet IP Router

8

k

” ”

” ”

4

! ! !

! !

8

10

k

” ”

” ”

4

!

/

k

” ”

” ”

4

8

8

k

k

knxprod

ETS (

ETS4

k

k

EIB	21~30V DC	EIB	
EIB	<12mA		
EIB	<360mW		
	24~30V DC		
	<200mA		
	<6W		
16A	<1.5W		
6A	<1W		
EIB/KNX		/ / /	0.8 mm Ø
16A			
		0.5-4mm ²	
		0.8N-m	
!	/		
16A		0.5-1.5mm ²	
		0.5N-m	
		LED	
IP 20, EN 60 ,:	"		

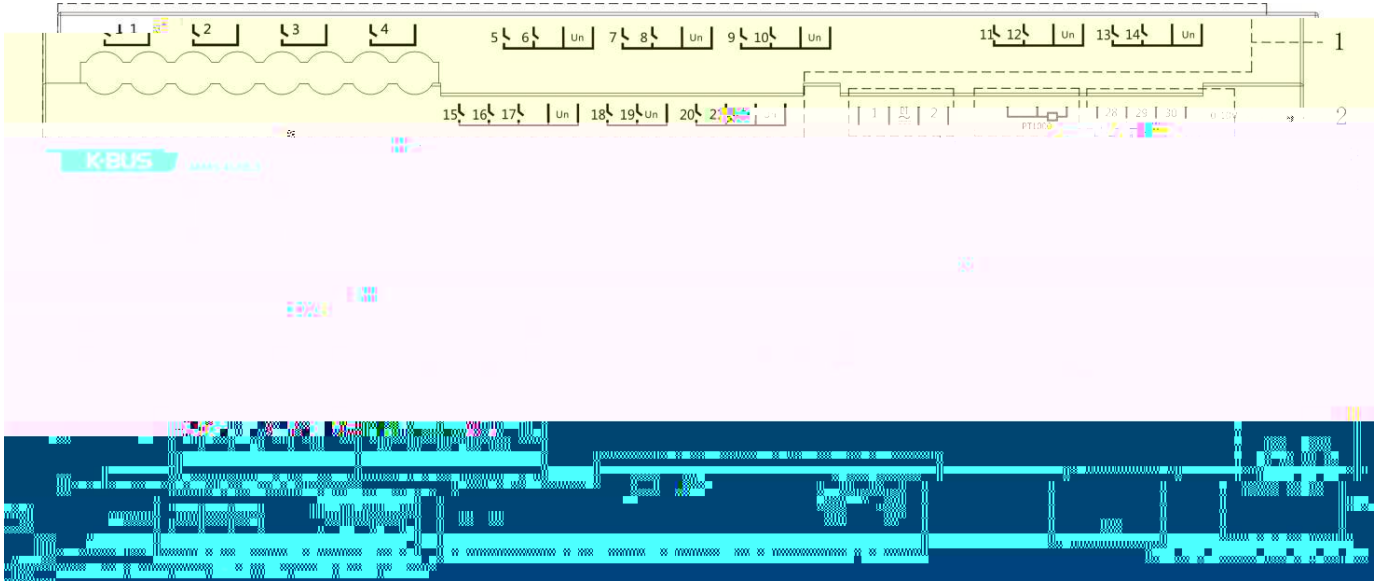
	0.7KG	
	5	
		12V DC
		0.4mA
		10m
	1 PT1000	
	1	
	2	Un 0...265V AC/DC
		0 0...3V AC/DC
		1 9...265V AC/DC
		100 m (1.5mm ²)
		In Max.2mA
	3	
		0~10V
		50mA
	5	
	LED	12V
	LED	10mA
	2	
		100W
	4	
	U _n	250/440 VAC 50/60Hz
	I _n	16A/140uF
		20A/250V AC
		>1 Ô 10 ⁵
		16A/24V DC
	21	!

	U _n	240/400V AC 50/60Hz
	I _n	6A/70uF
		6A/240V AC
		> 2 x 10 ⁶
		>5 x10 ⁴
		6A/30V DC

*k**k*

AMRS-41/05.3	275	512	512

!



15 16 17 LED 5 1

18 19 LED

3 0-10V 2

PT1000 L N , LED

LED KNX

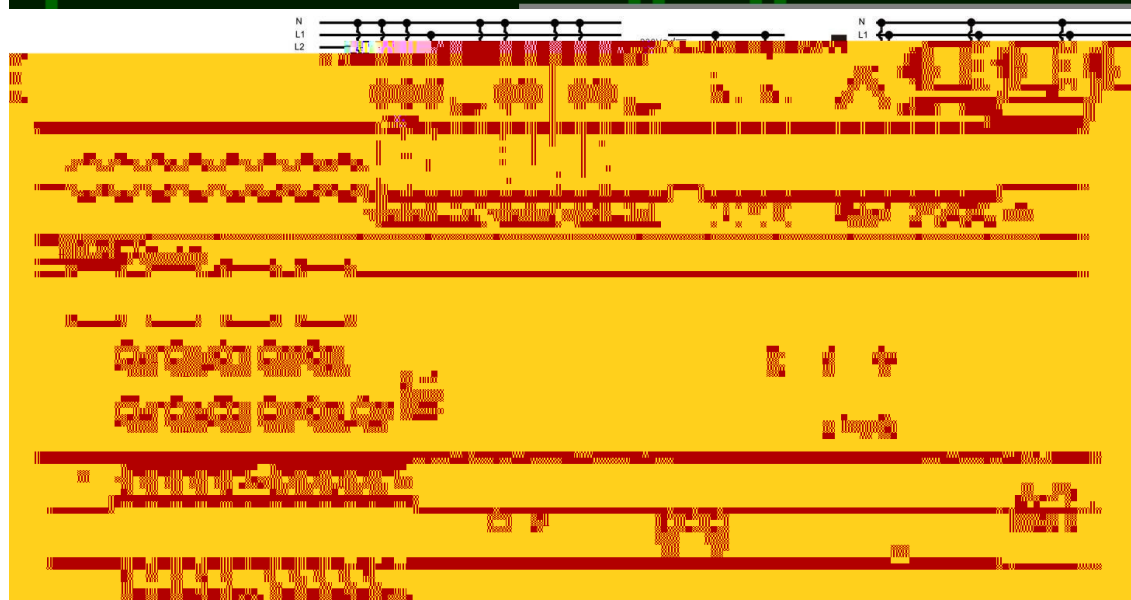
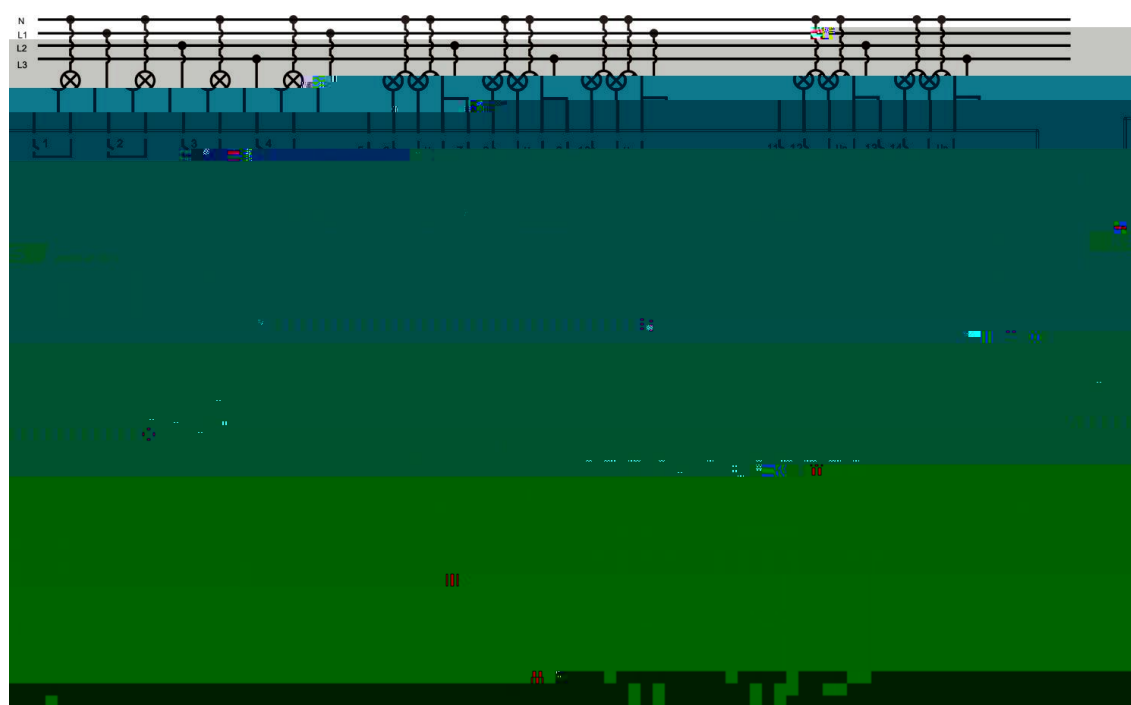
1-10 IP

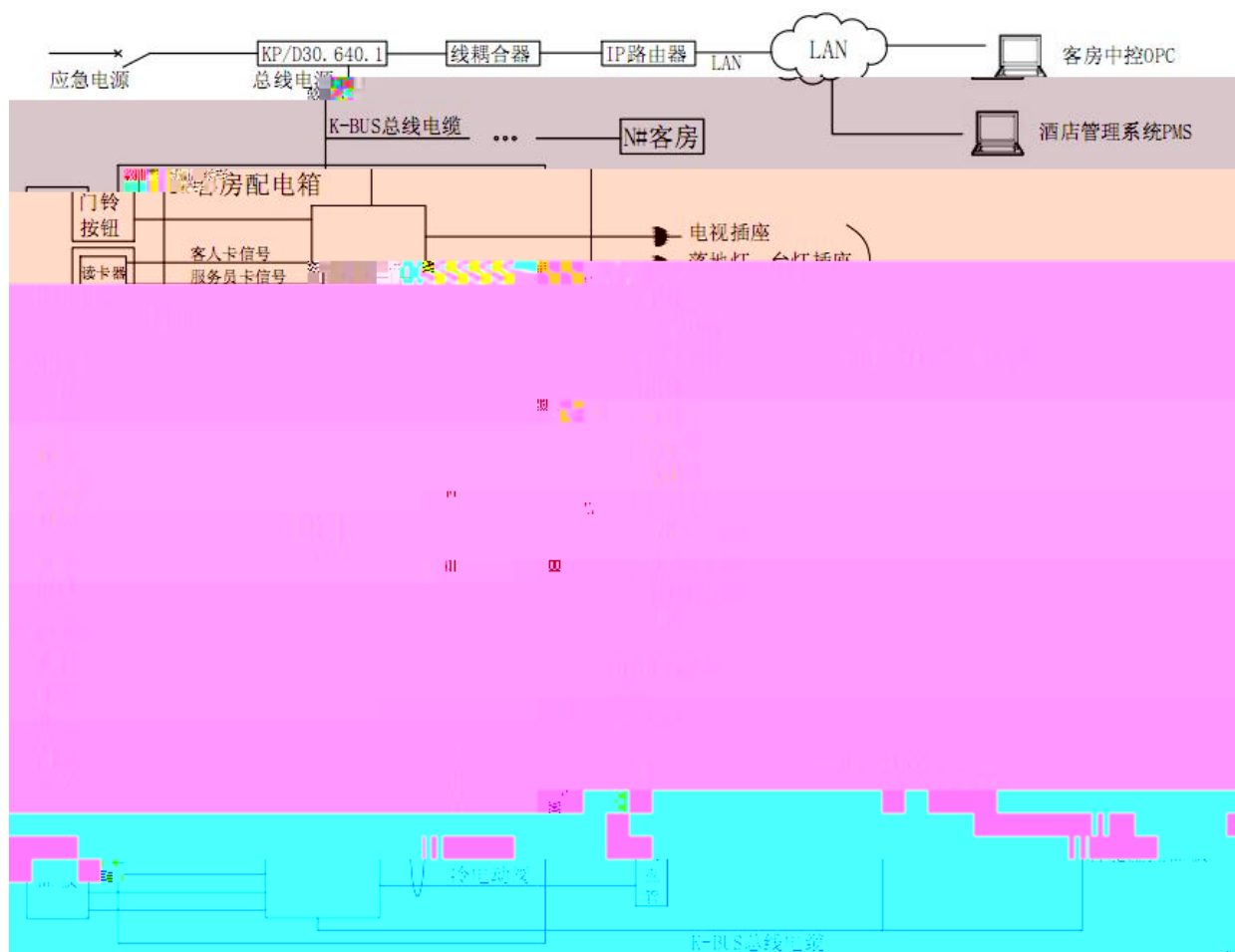
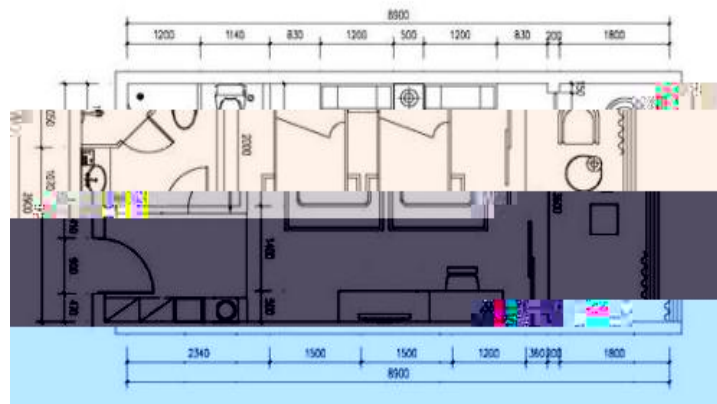
11-20 Client KNXnet IP

21-30 LED

EIB/KNX

5 1





1) ! ! ! ! ! k

2) ! k

3) k

4) ! k

k

5) k

! k

6) OPC

k

ETS

k

k

! LED IP k

Input & LED & IP General

Output setting

Temperature

Logic & Time & Scenario

Opération delay after power voltage recovery[1..250]s

5

Send cycle of "In operation" telegram (1..240s,0=inactive)

0

* mark that the function is invalid temporarily

IP function enable

NO

YES

Input Channel for UI enable

Is input 1 enable

No

Yes

Is input 2 enable

No

Yes

Is input 3 enable

No

Yes

Is input 4 enable

No

Yes

Is input 5 enable

No

Yes

Input Channel for BI enable

Is input 1 enable

No

Yes

Is input 2 enable

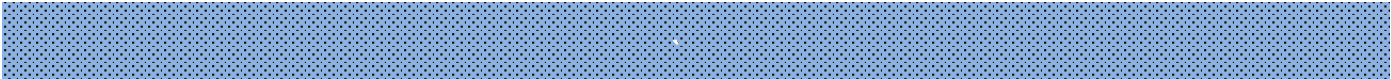
No

Yes

LED drive enable is

No

Yes



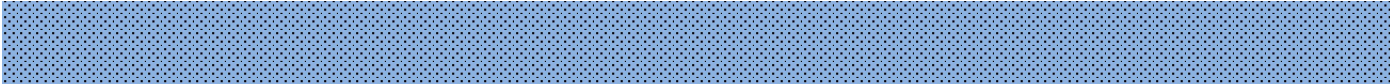
k

k

k

2s k

k



,

k

0

in operation

k

0

in operation

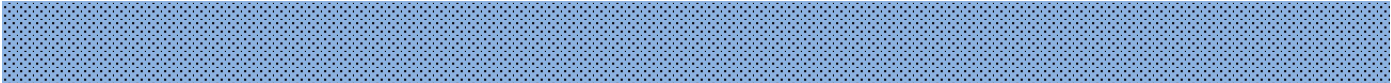
1

k

Q, ..240s 0=

k

k



IP

IP

IP

IP

k

IP

KNXnet/IP

5

k

KnxNet IP Router

8

k



X X 1..5 k

5

A

k

X X 1..2 k

k

LED k

LED 5 k

k

Input & LED & IP General	Output Channel enable	
Output setting	Is Output 1 Enable	☒ No ☐ Yes
Temperature	Is Output 2 Enable	☒ No ☐ Yes
Logic & Time & Scene Group	Is Output 3 Enable	☒ No ☐ Yes
	Is Output 4 Enable	☐ No ☒ Yes
	Is Output 5 Enable	☐ No ☒ Yes
HVAC General	Is Output 25 Enable	☒ No ☐ Yes
Setpoint	Curtain Output Channel enable	
Fan	Is Curtain 1 enable	☒ No ☐ Yes
Fan: Status	Output Channel is fixed for (if Yes)	Curtain 1: Output 22 & Output 23
HVAC-Scene	Is Curtain 2 enable	☒ No ☐ Yes
	Output Channel is fixed for (if Yes)	Curtain 2: Output 24 & Output 25
	Dimming Output Channel enable	
	Is Dimming (TRIAC) Output 26 enable	☒ No ☐ Yes
	Is Dimming (TRIAC) Output 27 enable	☒ No ☐ Yes
	Is Dimming (0-10V) Output 28 enable	☒ No ☐ Yes
	Is Dimming (0-10V) Output 29 enable	☒ No ☐ Yes
	Is Dimming (0-10V) Output 30 enable	☒ No ☐ Yes
	Is HVAC	

X X 1..25 k



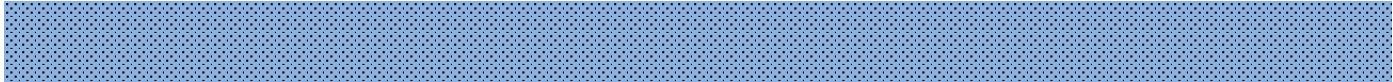
X X 1..2 k

1 22 23 2 24 25 k
k



X X 26 27 k

0-10V X X 28 29 30 k



HVAC k k

0-10V k 1..20

0-10V 28 k

k

GVS

K-EIS®

KNX/EIB

2

16

3

15

17

3/MI-9 10 01/06

□ □ □

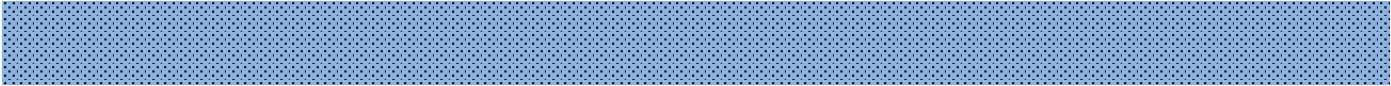
(•) × -

Temperature

5.3

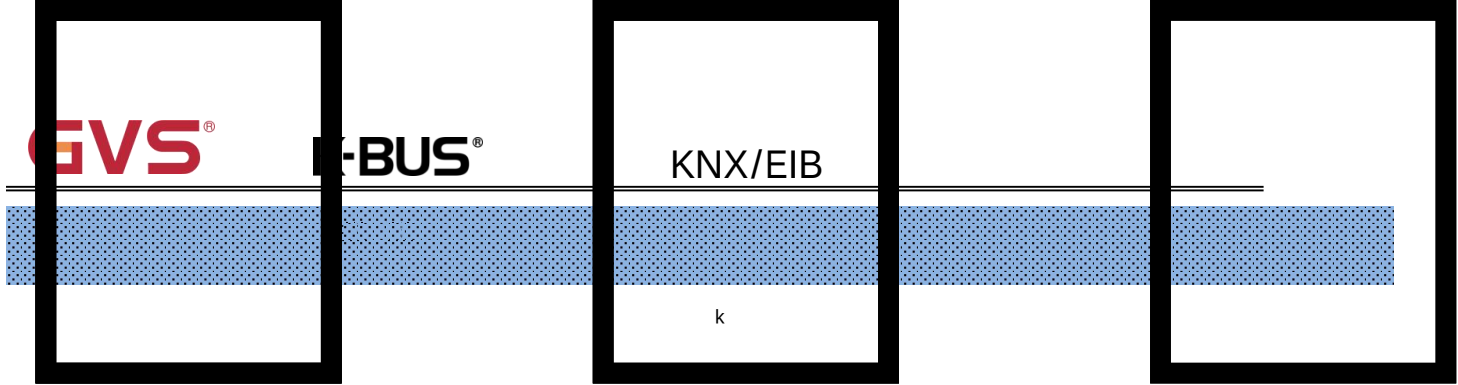
k

Input & LED & IP General	Temperature measure by	☒ Local sensor ☐ External sensor
Output General	Temp. calibration for local sensor[-50..50] *0.1°C	0
Temperature	Send Temp. when the result change by [1..20]*0.5°C	4
Logic & Time & Scene Group	Cyclically send actual Temp.[0..255]*min	10
	Reply error of local sensor measurement	No respond
	Object value of error	☒ 0=no error/1=error ☐ 1=no error/0=error



“Actual temperature output ”

0 k



"Local sensor

error output "

k

"Local sensor error

output "

k



k

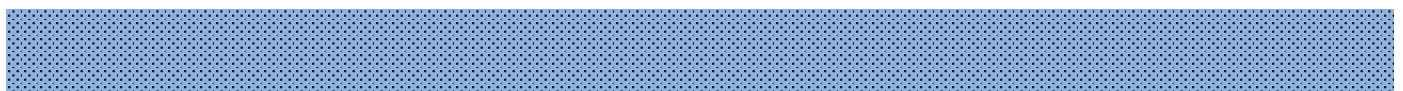
0 no error/1=error

"Local sensor error output "

0

1

k



5.1

IP

IP

k

Input & LED & IP General

Output General

Temperature

Device name (max. 30 char.)

[Byte1].[Byte2].[Byte3].[Byte4]

IP Address

Byte1

KNX IP Interface

192

k Byte x 0 255

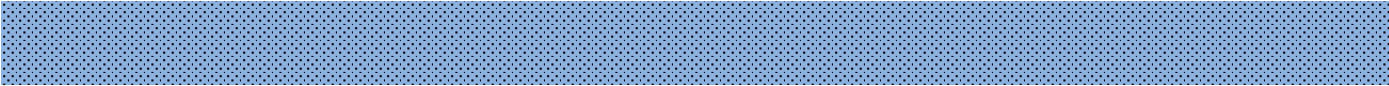
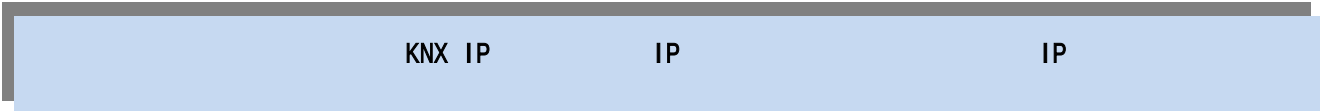
255.255.255.0

IP k Byte x 0 255

192.168.1.1

IP k

KNXnet/IP 224.0.23.12 KNX IANA k
k k



k

Yes

k



k

: IP-->KNX KNX-->IP

k

IP<-->KNX

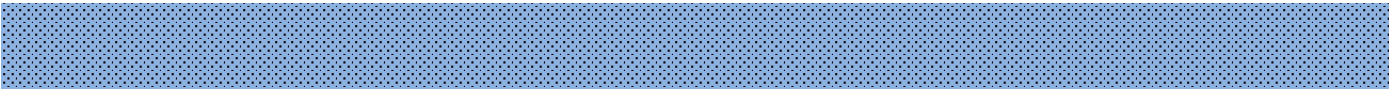
k

8

k

k

k



k

k

k



k

k

5

2

k

k

k

k

k

k

5.1

5.5

k

Switch sensor

5.55.6k

5.5 / 5.6 / k

Input & LED & IP General

Output General

temperature

UI input 1

Logic & Time & Scene Group

Function of the channel

Distinction between long and short operation

Cyclic send Tele."Tele.switch"

Reaction on closing the contact

Reaction on opening the contact

Delay time [2..50000]*0.1s

Send object value after voltage recovery

Disable input via 1bit communication object

Debounce time

Switch Sensor

☒ No ☐ Yes

NO

TOGGLE

no action

100

☒ No ☐ Yes

Disable=0/Enable=1

50ms

switch sensor

k

No Function

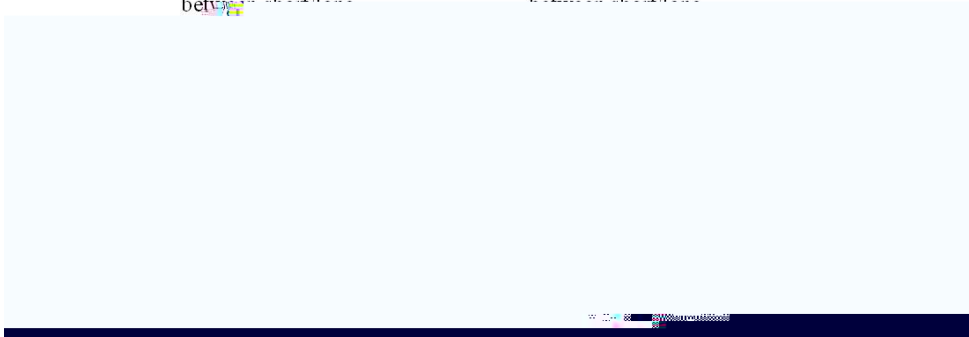
k

/ k yes

k

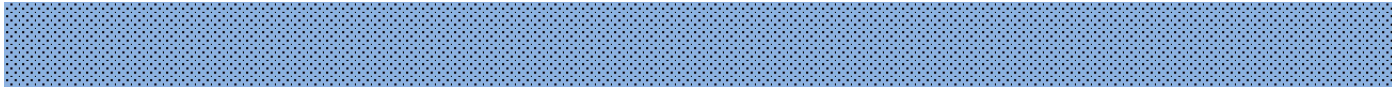
Without distinction
between short/long

With distinction
between short/long



k

k



/

k

Switch

k

If switch off

If switch on

k

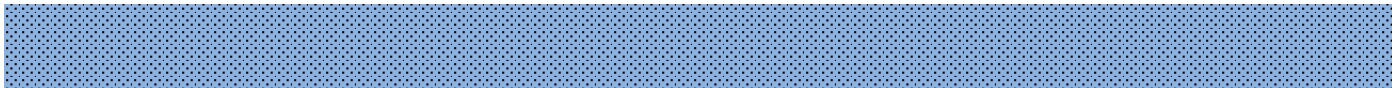
Always

switch operation

0

1

k

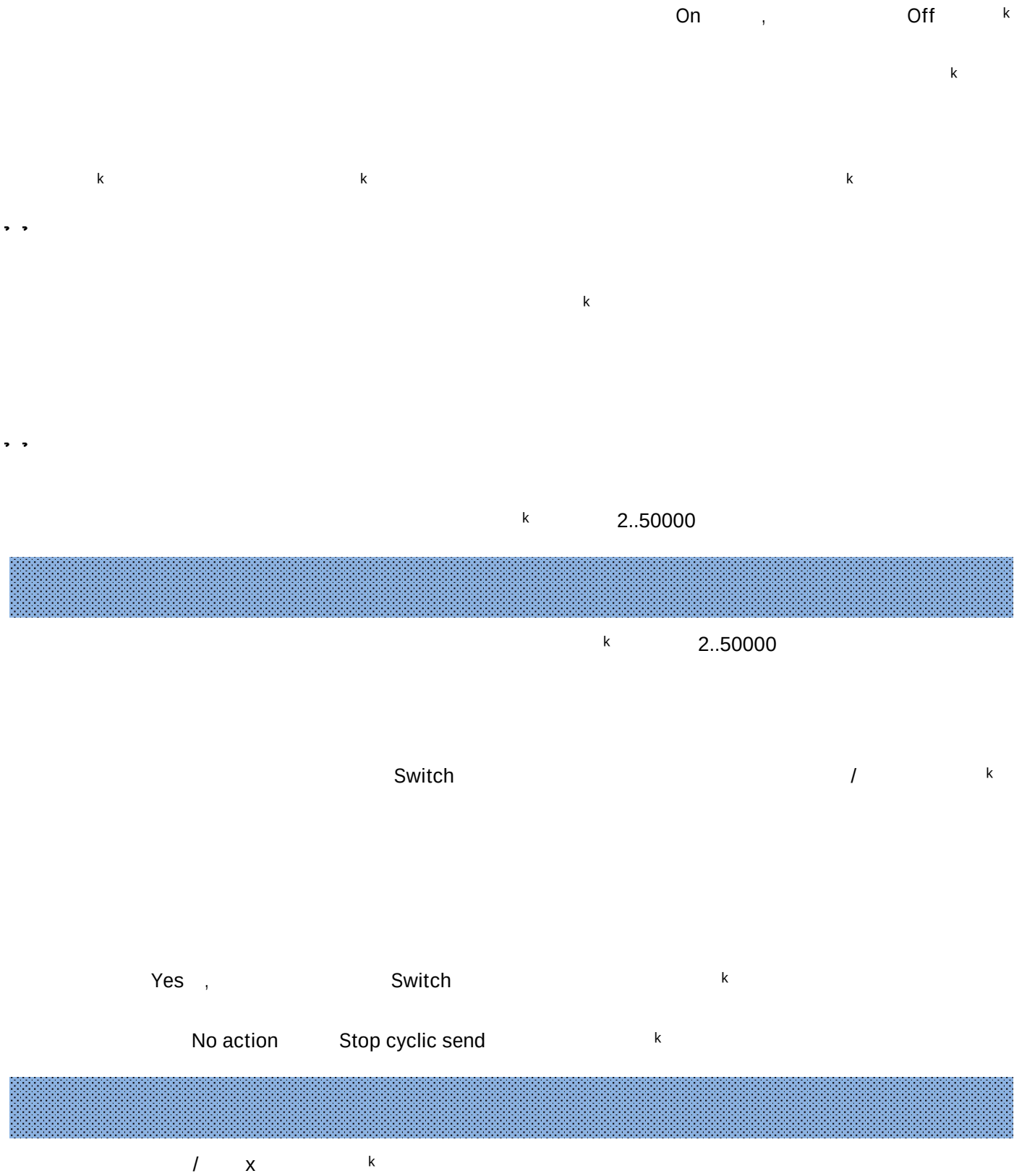


/

k

Switch

k



Disable=0/enable=1

Enable communication

0

X

1

X

k

k

k

k

x

Input & LED & IP General

Function of the channel

Switch Sensor

Output: General

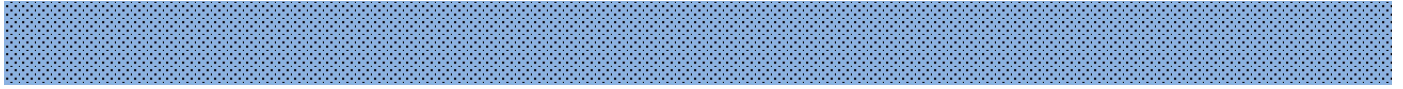
Distribution between long and short segments

/

k

Normally open

k



/

k

/

k

k

” ”

Delay mode

k

” ”

k

2..50000



/

k

k

2..50000

Switch/Dimming

5.7

Switch/Dimming

k

k

Input & LED & IP General

Output General

Temperature

IP setting

Function of the channel

Connect contact type

Dimming functionality

Reaction on short operation

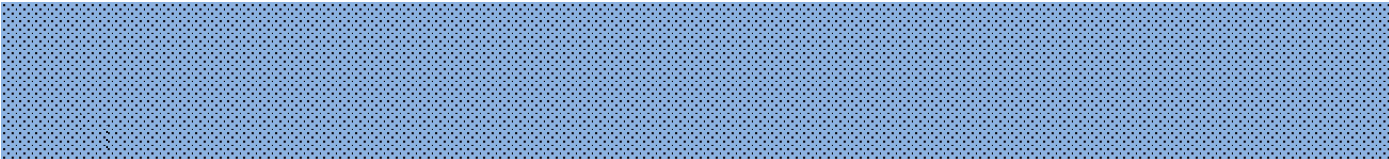
Reaction on long operation

Switch/Dimming

☐ normally closed ☒ normally open

☒ Dimming and switching ☐ Only dimming

TOGGLE



Only dimming

/

k

Dimming functionality

Dimming and Switching

k

Switch

k

Dimming functionality

Dimming and Switching

,

k

k

Dim BRIGHTER / DARKER

/

k

Dimming functionality

Dimming and Switching

,

k

k

k

2..50000

Dimming functionality

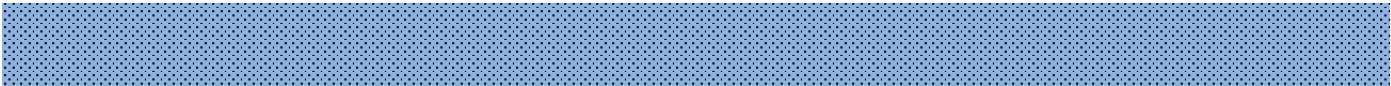
Only dimming

,

/

Reaction on long operation

k



k

Start-stop dimming

k

k

Steps dimming

k



Dimming mode

Steps dimming

,

k

k

, ,



Dimming mode

Steps dimming

,

k

k

2..50000

Value/Forced output

5.8

Value/Forced output

k

Input & LED & IP General

Function of the channel

Value/Forced output

Distinction between long and short operation

No

Yes

Send object value after voltage recovery

No

Yes

Reaction on short operation or closing the contact

1 byte value [0..255]

Output value[0.255]

127

Input & LED & IP General

Function of the channel

Value/Forced output

Distinction between long and short operation

No

Yes

Connect contact type

normally closed

normally open

Long operation after [2..50000]*0.1s

5

Reaction on short operation or closing the contact

1 byte value [0..255]

/ k yes

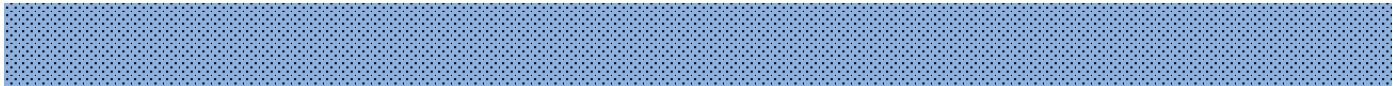
k



/

k

k

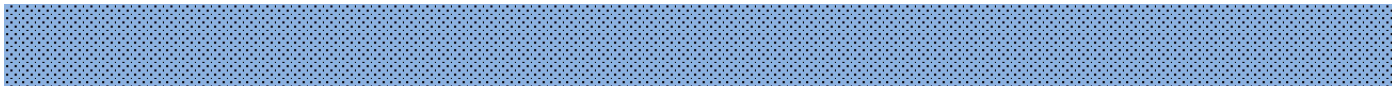


/

k

k

2..50000



/

5.8_1

,

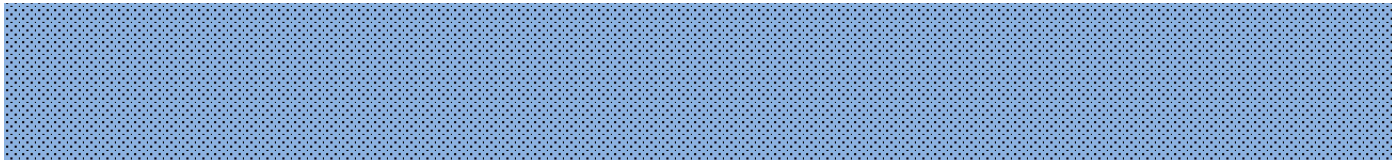
-long/open(short/close)

k

yes ,

-long/open(short/close)

k



/

/

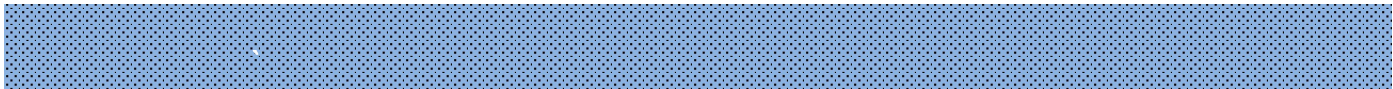
/

k

5.8

, ,

,



k

k

Shutter control

5.9

Shutter control

k

k

Input & LED & IP General	Function of the channel	Shutter Control
Output General	Connect contact type	☐ normally closed ☒ normally open
Temperature	Operation functionality type	1-push-button,short=stepping,long=moving
IP setting	Short:Lamella, Long:Move UP/DOWN	Note about fuctionality
UI input 1	Long operation after [2..50000]*0.1s	5
Logic & Time & Scene Group	Disable input via 1bit communication object	Disable=0/Enable=1
	Debounce time	50ms

k

k

k

	 > > / > > / >.....
	“ ” “ ” “0” “1”
	/
	“ / ” “ / ”
	“ ” “ ”
	 > > / >..... > > / >..... /
	“ / ” “ / ”
	“ ” “ ”
	“ / ” “ / ”

k

k

2..50000

1-push-button, short=moving, long=stepping 2-push-button, stepping

Stop/lamella adj k

2..50000

2-push-button, standard

k

2-push-button, standard

k

2-push-button, moving[shutter] ! 2-switch-operation, moving[shutter]

2-push-button, stepping

k

k

/

k

LED

k LED

5

k

LED

LED

LED

k

Input & LED & IP General

Output General

Temperature

IP setting

LED Setting

Output 1

Output 2

Output 3

Output 4

1st LED Control By

The object value='0', LED is

The object value='1', LED is

2nd LED Control By

The threshold value is

The object value <= 'threshold value', LED is

The object value > 'threshold value', LED is

3rd LED Control By

The object value 0..100% correspond OFF..Level 9

4th LED Control By

LED flashing trigger value

Flashing Frequency

5th LED Control By

The object value='0', LED is

The object value='1', LED is

1Bit

OFF

Level 5

1Byte two Level

128

OFF

Level 5

1Byte percent

1Bit trigger flashing

0=Flashing,1=OFF

0=OFF,1=Flashing

300ms

Level 5

1Bit

OFF

Level 5

LED

1bit

LED

1

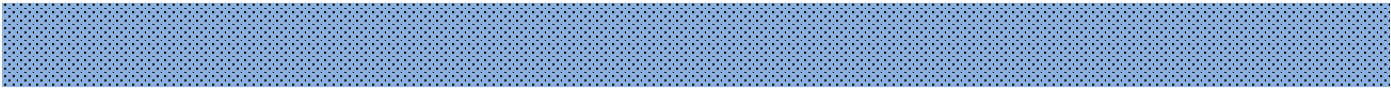
0

k

LED

LED

k



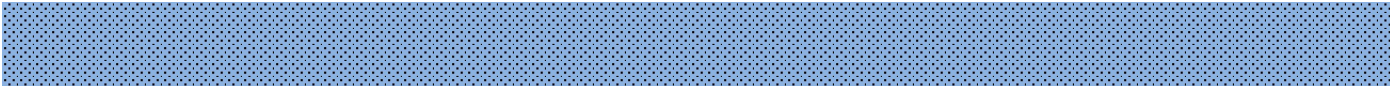
LED

1Byte two level

LED

k

0...255



LED

25

k

!

k

5.2

5.11

k

Input & LED & IP General

Output General

Temperature

IP setting

It power voltage recovery,contact is

Output type

Status report

Scene function is

open

☐ Normal 1=close, 0=open

☐ Inverted 1=open, 0=close

☐ After change and after read

☐ After read only

☐ Disable

☐ Enable

Output 1

Logic & Time & Scene Group

1> Scene No.(1..64,0=no allocation)

--Standard output value is

2> Scene No.(1..64,0=no allocation)

--Standard output value is

0

☒ OFF

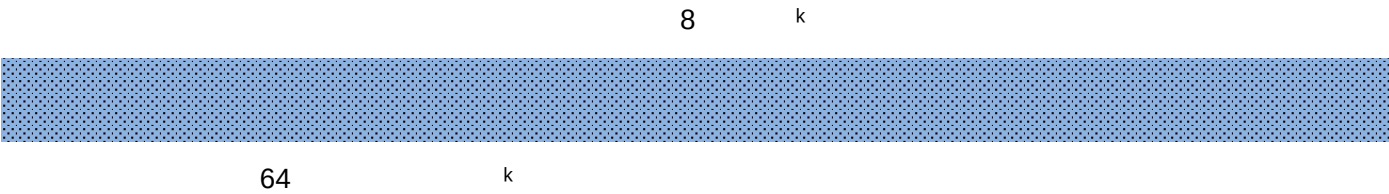
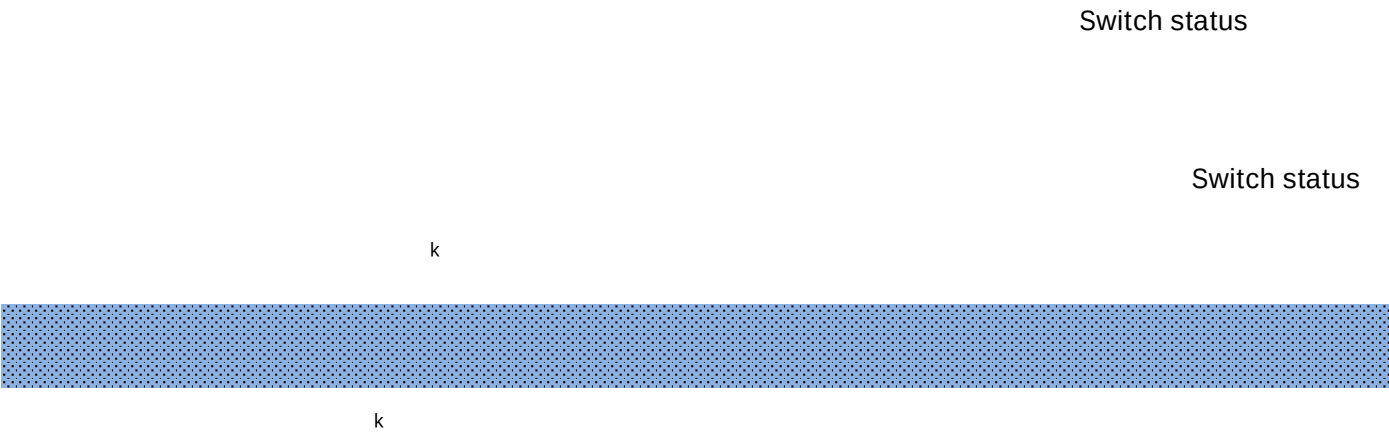
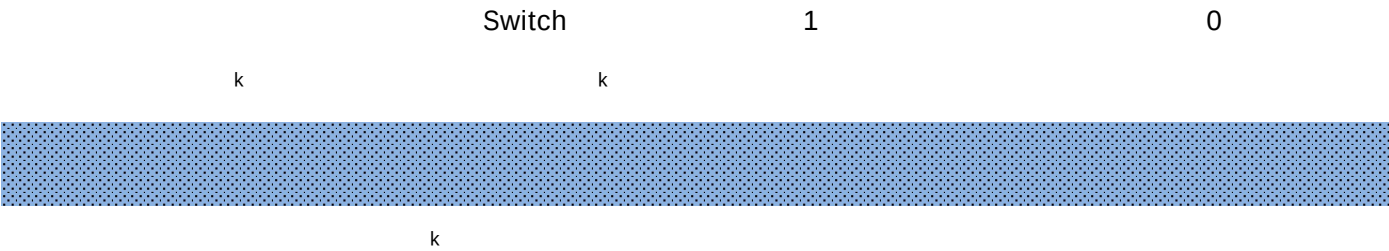
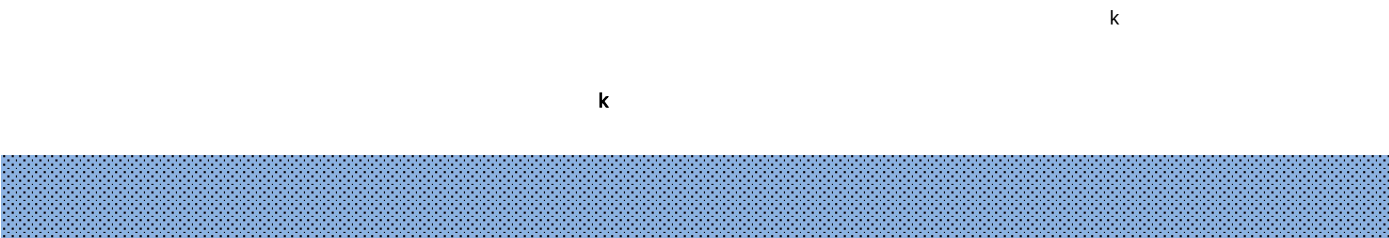
☐ ON

0

☒ OFF

☐ ON

k



1... 64 0=no allocation

k

k



k

2

k

5.2

5.12

k

Shutter Blinds k

Shutter

Blinds

k

Shutter

5.12

k

Input & LED & IP General

Output General

Temperature

Curtain 1

Logic & Time & Scene Group

Work mode

Motor type

Position on power voltage recovery

Total move time[1..6000]*1s

Louvre adjust number[1..10]

Duration of louvre adjust[10..100]*10ms

Inverted Time[1..50]*0.1s

Scene function is

Reference move function is

Enable Force operation(2bit)

Status report

After reach Max. or Min. position via Move UP/DOWN, the curtain is

☒ Shutter

☐ Blinds

☒ AC-motor

☐ Dry Contact

No reaction

20

5

30

10

☒ Disable

☐ Enable

Disable

☒ No

☐ Yes

After change and after read

After read only

☒ New position

☐ Go on move

k

Shutter

k

Blinds

Shutter

k

Shutter

k

AC-motor

k

GVS[®]

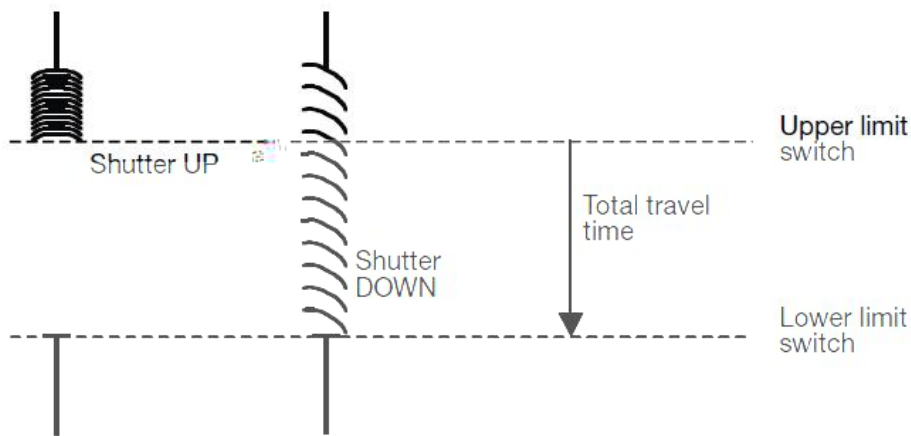
K-BUS[®]

KNX/EIB

ry contact

k

k %{



k

!

k

k

k

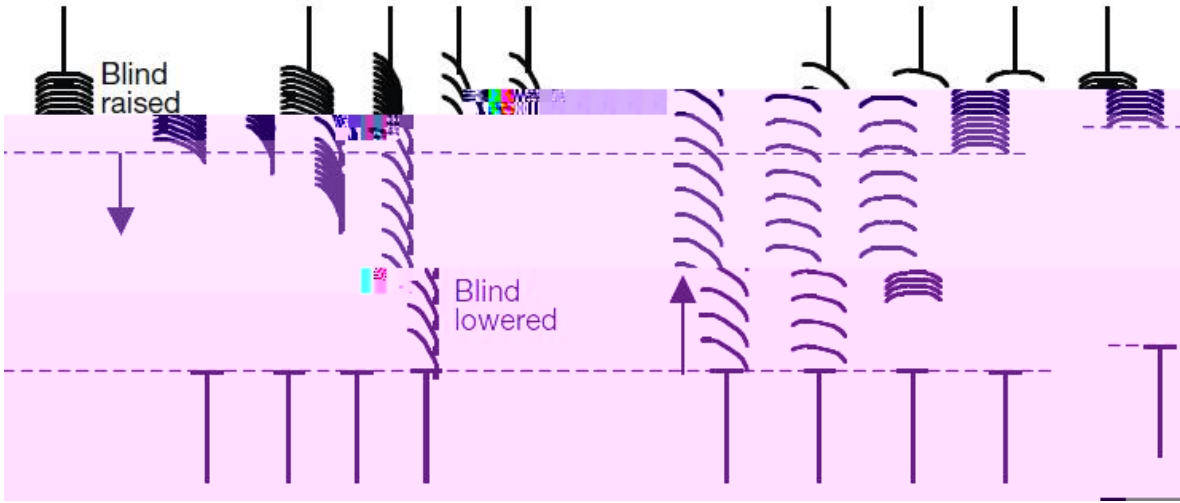
k

Ô

k

k

k



k

k

k

k

8

,

k

5.8.1.2

k

k

Reference movement

0

1

k

Reference movement

0

'1'

(

0)

1'

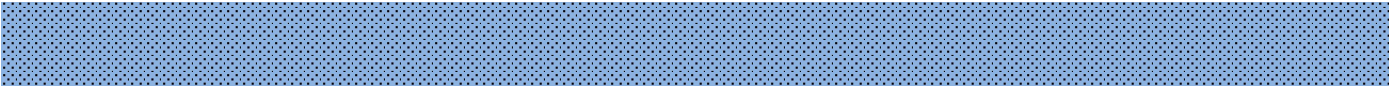
k



k

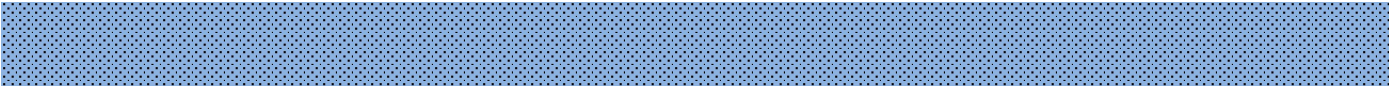
k

k



k

2



k

Force Operation

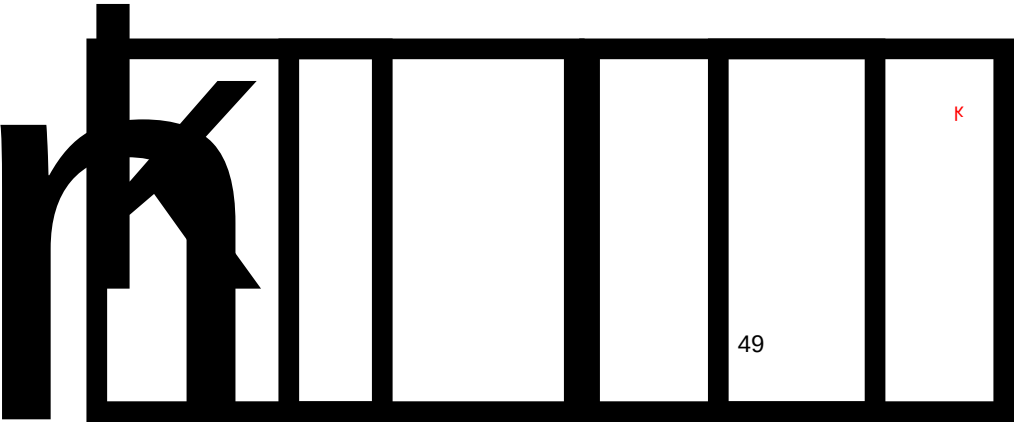
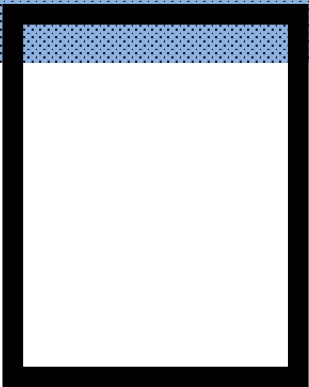
0

1

2

3

k



k 5..255

255 k

Scene 5.14 k

8 , k

Input & LED & IP General

1> Scene No. # 0 = "no allocation)"

Output General

Position: Shutter 0..100%(0% =top,100%=bottom)

Temperature

Position: Louvre 0..100%(0% =open,100%=close)

Setting

2> Scene No.(1..64,0=no allocation)

0

Position: Shutter 0..100%(0% =top,100%=bottom)

0

Position: Louvre 0..100%(0% =open,100%=close)

0

3> Scene No.(1..64,0=no allocation)

0

Position: Shutter 0..100%(0% =top,100%=bottom)

0

Position: Louvre 0..100%(0% =open,100%=close)

0

”

64 k

8 k Scene 1... Scene 64 0=no allocation

k k

”

0, 100% 0% top, 100%=bottom

”

0, 100% 0% opened, 100%=closed

Blinds

Shutter

k

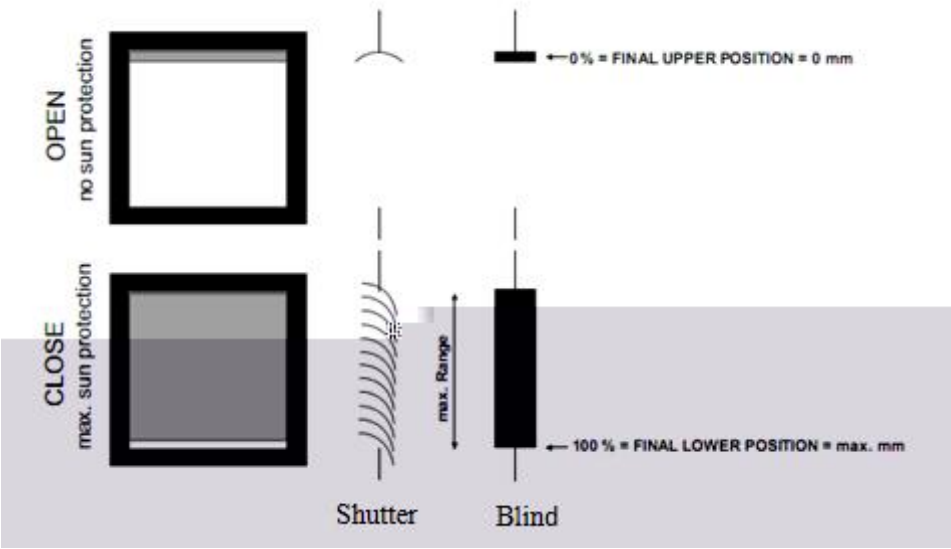
Blinds

k Blind

k

Shutter

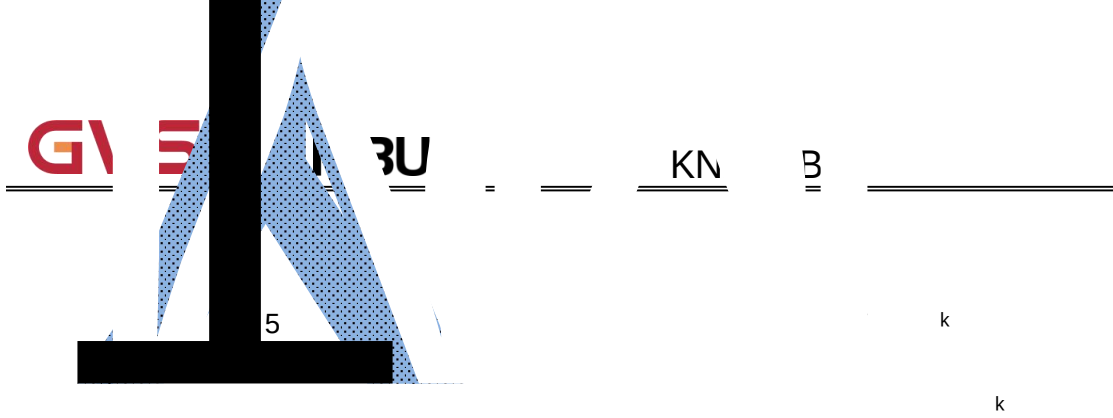
Blind



Blinds

Shutter

() k



0-10V

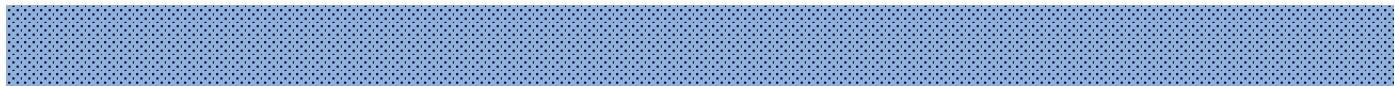
5.2

5.2 k

15

k

Duration time of dimming[0..15]*1.25s		Input & LED & IP General
After power recover switch on with	☒ Preset brightness value ☐ As before bus voltage fail	Output General
Power recover preset brightness value [0..100]%	0	Temperature
Status report	☒ After change and after read ☐ After read only	Dimming (TRIAC) Output 26
Lower threshold of Dimmer[0..100]%	0	Logic & Time & Scene Group
Scene function is	Disable ☒ Enable	
1> Scene No.(1..64,0=no allocation)	0	
Brightness value[0..100]%	0	
2> Scene No.(1..64,0=no allocation)	0	
Brightness value[0..100]%	0	



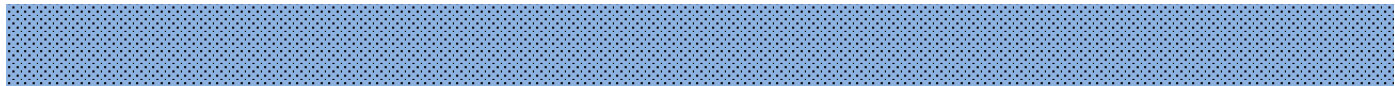
k

Brightness

Switch

Relative dimming 3 J (2©m&Q

: 1.25st3 t3072|05 7-4Èkl 3



EKJ 3 6
_f

k

FZ

k

” ”

0% ϕ 100% k



k

/

Switch status / “Brightness status”

/

Switch status / “Brightness status”

k



k

0~100% k

k

k

k



k

8

k

64

k

1... 64 0=no allocation

k

k

0% φ 100%

“HVAC General”

5.16

Local

(Bus)

k

k

k

Input & LED & IP General

Output General

Temperature

Logic & Time & Scene Group

HVAC General

Setpoint

Fan

Fan Status

HVAC Scene

HVAC Control mode

HVAC-System

If 2-pipes system is used, then use Heat valve drive

Controller define

Heat/Cool switch by

Number of Heat/Cool switch object

Insensitive zone between heating and cooling

Min. changeover time between heat and cooling

2-point control method setting

Lower Hysteresis[0..200]*0.1°C(for heat)

Upper Hysteresis[0..200]*0.1°C(for cool)

PI control method setting

Heat speed

Cool speed

Report operation status function for HVAC

Heating and Cooling

☒ 2-pipes system ☐ 4-pipes system

<--Attention

☒ Local ☐ Bus

☐ Local ☒ Bus

☒ 1 object ☐ 2 objects

1°C

0..255 min

10

▲▼

10

▲▼

Normal(12000/900)

▼

Normal(12000/900)

▼

☒ Disable ☐ Enable

K-BUS[®]

KNX/EIB

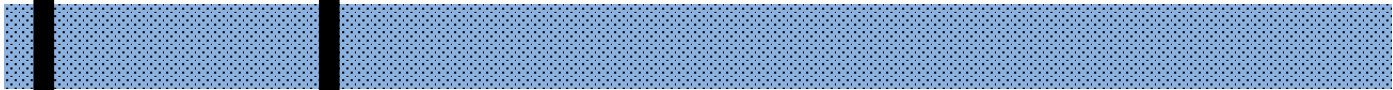
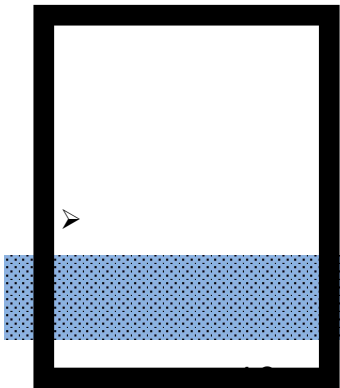


k

k

k

k



“HVAC-System”

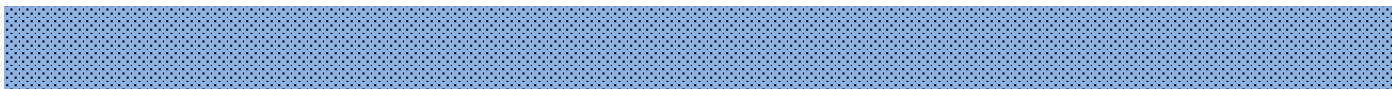
“2 pipes system”

k

Heating/Cooling mode

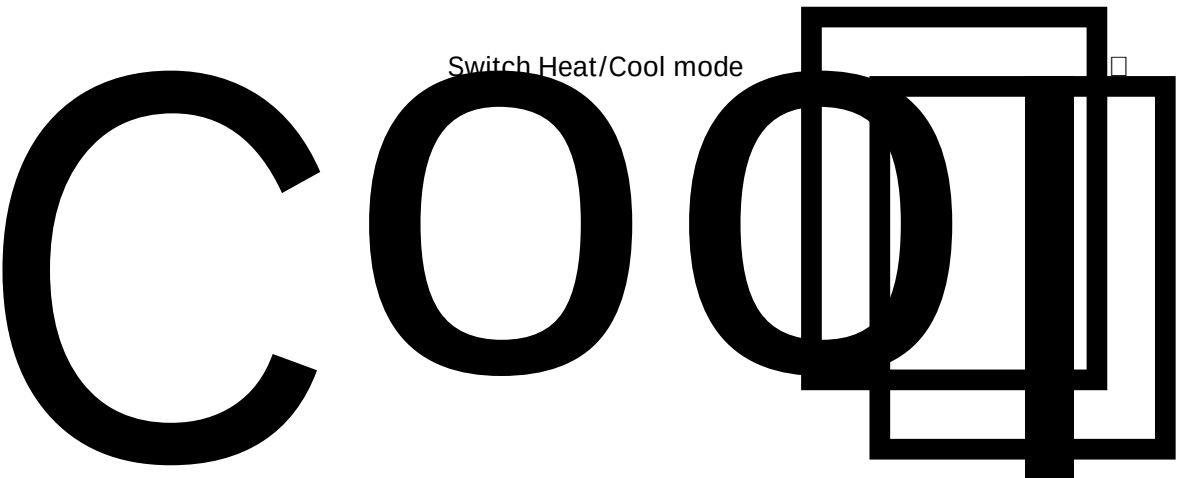
k

k



/

k



Switch Heat/Cool mode

□

“HVAC Control mode ” “Heating and cooling” k

k

k

0.5...6.0[]

5.10.2.1 k

k

0...255[min.]

” ”

,

” ”

,

HVAC k 0..200

T >

< - k

3, 22, T 22,

T 19, T 19~22, k

T <

> + k

3, 26, T 26, T 29,

T 29~26, k

• •

• •

PIk

Heat /Cool speedUser definedPIPIk

HVACk

Status of operationk

7	6	5	4	3	2	1	0
	0 Limit 4	0 Limit 3	0 Limit 2	0 Limit 1	0	00	
	1 Limit 4	1 Limit 3	1 Limit 2	1 Limit 1	1	01	
						10	
						11	



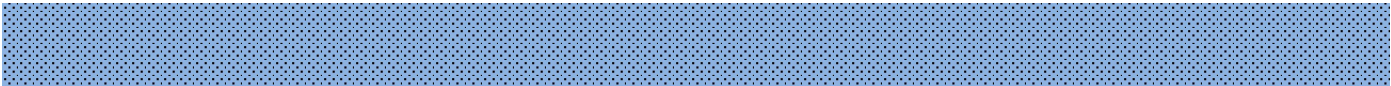
“HVAC-System” “4 pipes system”

k

254

“Switch Heat/Cool mode” 250

254 258 k

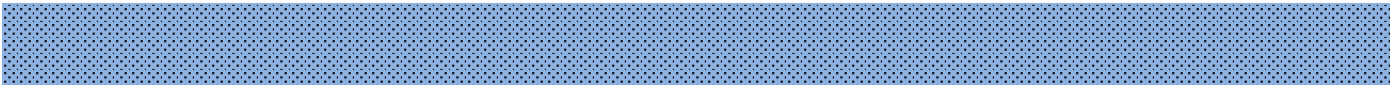


k

k

1bit

1Byte k



k

yes k

” ”

k 10...65535s

” ”

k

“Control value fault”

k

“Control value fault”

k

k

0...100 %

- 1.
- 2.

0

“Setpoint”	5.17	.							
5.16	Controller define”	“Local”	k						
		Heating	Cooling	5.16					HVAC
Control mode				k					

Input & LED & IP General

Output General

Temperature

Logic & Time & Scene Group

HVAC General

Setpoint

Fan

Fan Status

HVAC-Scene

setpoint temperature(°C)

When power recovery,controller status

Extended comfort mode
[1..255,0=inactive]*m

Operating mode switchover

Operating mode status

Heating

Reduced Heat in standby mode[0..10]°C

Reduced Heat in night mode[0..10]°C

Actual Temp. threshold in front
protection mode[2..10]°C

Limit value for setpoint Heat[5..40]°C

Cooling

Increased Cool in standby mode[0..10]°C

Increased Cool in night mode[0..10]°C

Actual Temp. threshold in heat
protection mode[5..40]°C

Limit value for setpoint Cool[5..60]°C

20.0°C

Comfort mode

30

1Bit

1Byte

1Bit

1Byte

2

4

7

35

2

4

40

15

k

15, 30 []

k

k 0...1-255 [min.]

0

1-255

k

k

k

k

1bit

4

1bit

ON

Off

k

Comfort mode

! Night mode

! standby mode

Frost/heat protection mode

0

k

k

k

1byte

1

! 2

! 3

! 4

k

k

1bit

4

1bit

k

Comfort mode

! Night mode

! standby mode

Frost/heat protection mode

1

0

k

1byte

1

! 2

! 3

! 4

k

k

k 0...10 []

k

k 0...10 []

k

k 2...10 []

k 5, 5, 5, k

k 5...40 []

k

30, 30, 30, k

·
·

k

k



Setpoint k

2-pipe system

$$= \quad + \quad k$$

4-pipe system

$$= \quad + \quad + \quad k$$

$$= \quad - \quad + \quad k$$

$$= \quad + \quad +$$

$$= \quad - \quad + \quad k$$

$$= \quad + \quad +$$

$$= \quad k$$

$$= \square \square \square \quad \square \square$$

0-10V

k

k

Fan type -- One level

5.18

1

k

Input & LED & IP General

Output General

Temperature

Logic & Time & Scene Group

HVAC General

Setpoint

Fan

Fan type is

When power failure,Fan speed is

When power recovery, fan speed is

After downloading,fan speed is

"Forced operation" function

Forced operation on object value is

Behaviour on Forced operation is

Auto. operation function(only for HVAC)

Time mode for function ON

Switch delay

Delay time[1..65535]*0.1s

Time mode for function OFF

Switch delay

Delay time[1..65535]*0.1s

☒ one level ☐ Multi level

Unchange

Unchange

OFF

☐ Disable ☒ Enable

☐ 0=Force/1=Cancel ☒ 1=Force/0=Cancel

Unchange

☒ Disable ☐ Enable

10

10

k

1

k

3

2

3

k

k

k



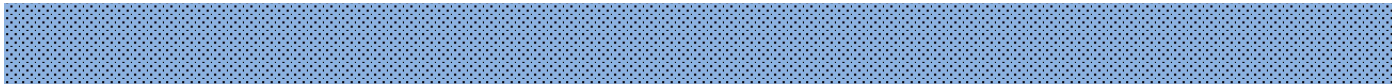
k

k

k



k



k

“Enable”,1bit

“Forced operation”

k

” ”

k

“Forced operation”

“0”

“1”

“Fan Forced operation”

“1”

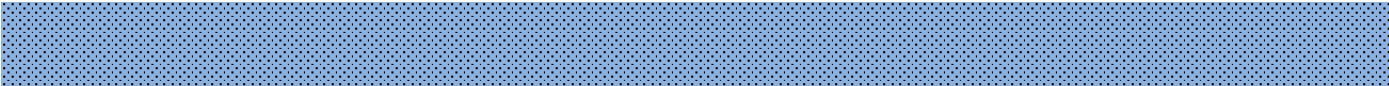
“0”

k

k

k

k



k

5.19

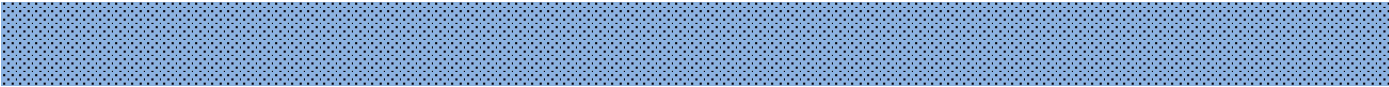
k

!

k

k

k



k

ON

“Delay time *0.1s [1...65535]” k

“Fan speed” “1”

k

k

“Minimum time*1s [1...65535]” k

k

k 1...65535

k 1...65535

k

OFF

“Delay time *0.1s [1...65535]”

“Minimum time*1s [1...65535]” k

k

k

k 1...65535

k 1...65535

5.18 “Auto. operation function” “Enable”

5.19

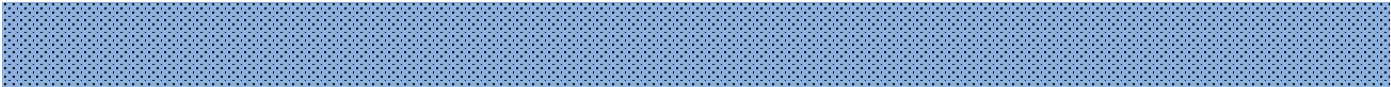


Control value ☐ ☒ ☐ ☐ 1, 255

k

,

k





Fan Limitation x (x=1,2,3,4)

k

k

HVAC

limit1

/

limit2

limit3

limit4

k

k

Limit 1

/

Limit 1

Limit 2> Limit 3> Limit 4 Limit 4

k

Fan Limitation x ($x=1,2,3,4$)

1 4

$\square \quad \square \square \square \quad k \quad \square \square \square \square \quad \square \square \square \quad \square \quad \square \square \square \square \square \square \square \square \quad \square \square \square \square \quad \square \square \square \square \square \square \square \square$

X

X

X

OFF

ON

k

Fan status5.20k

Input & LED & IP General

▼

Output General

▼

Temperature

Reply mode of Obj."Status Fan"

1bit function

Respond after change

Reply mode of Obj."Status Automatic"

1bit function

Respond after change

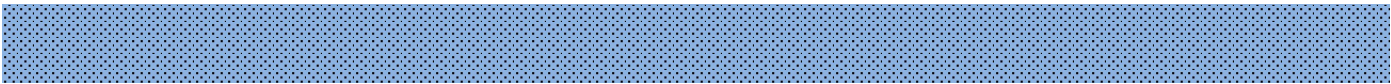


k

Status Fan ON/OFF

Status Fan ON/OFF

Status Fan ON/OFFk



		k	
Status Automatic	1	0	k
Status Automatic			
Status Automatic		k	
		Status Automatic	k



K-BUS®

KNX/EIB

Multi level

2

3

k

2

k

3

3

k

k

k

k

k

k

k

k

3

3

CH O, P, Q

2

2

CH O, P k

k

• •

,

changeover switch

k

50, 5000

k

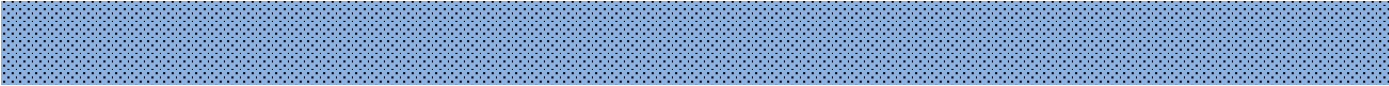
k

k

k

k

k



k

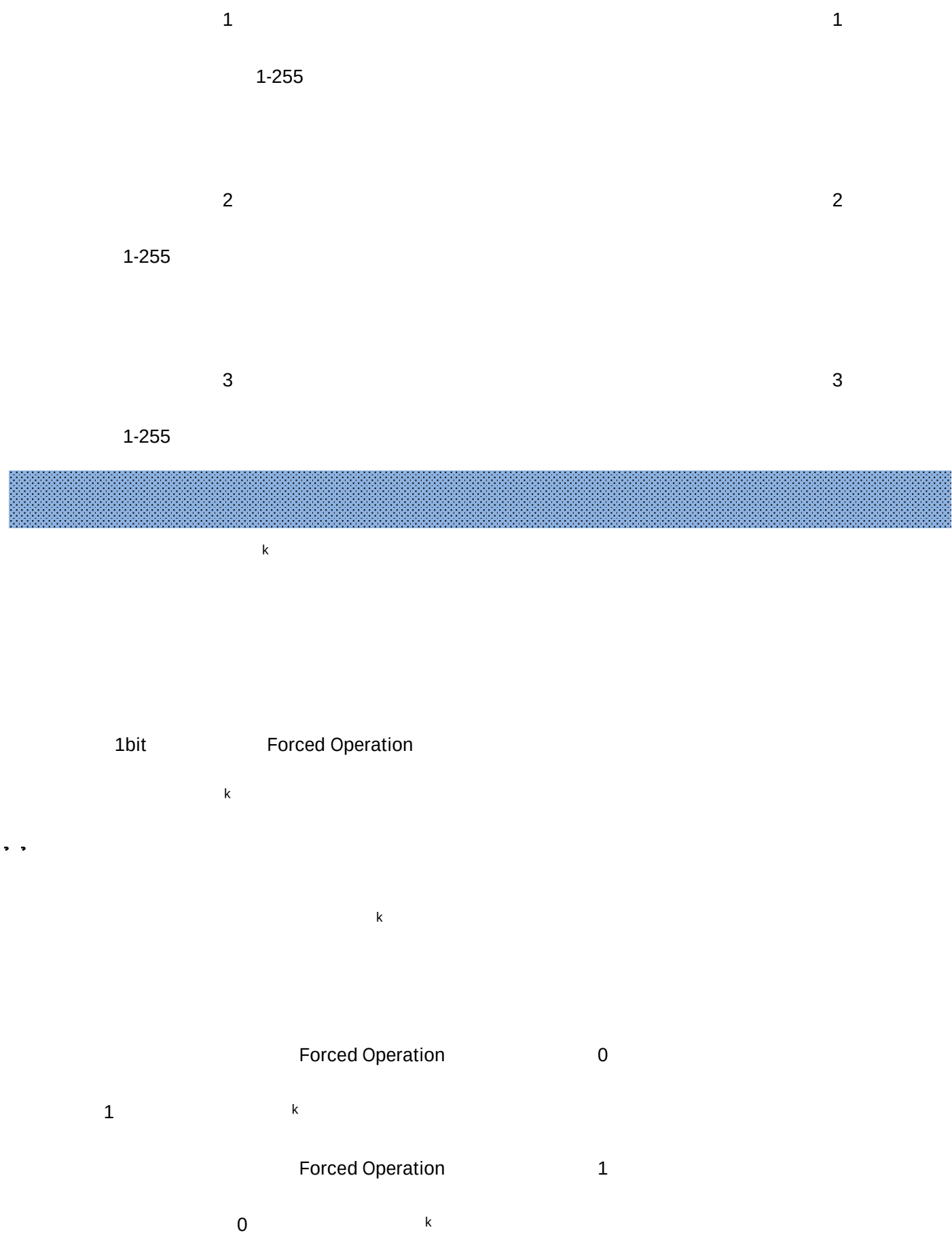
1 2 3

k

k

k

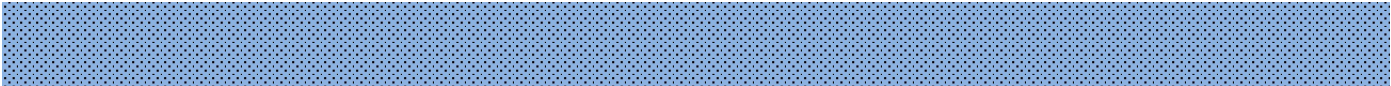
k



k

k

k



k

1

1

2

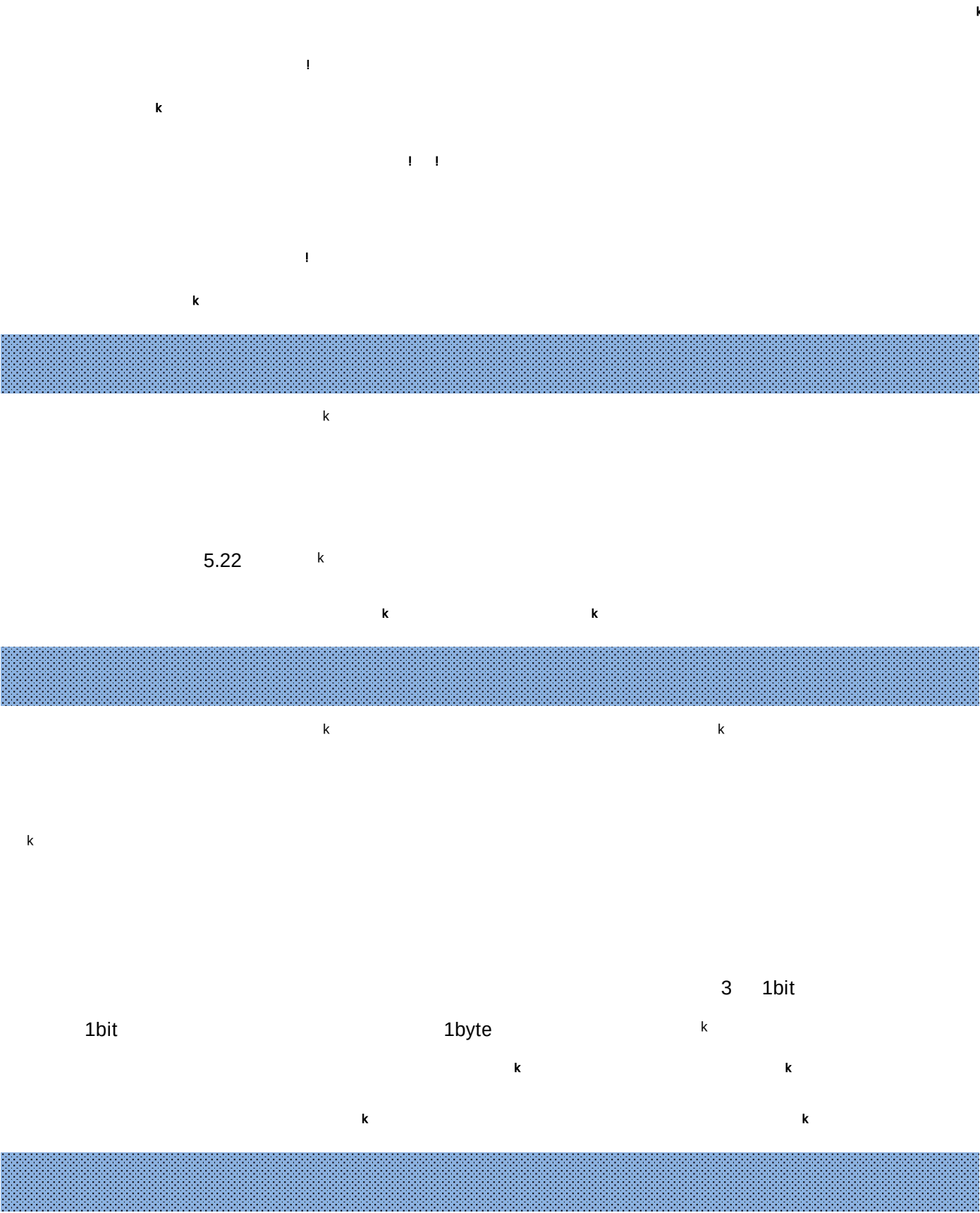
1 2

1 2

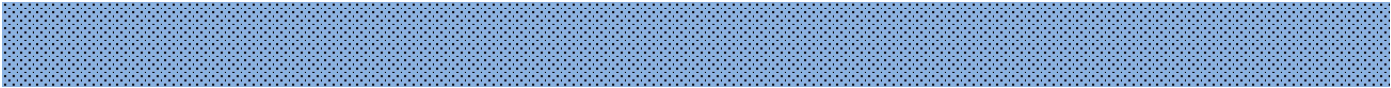
3

3 2

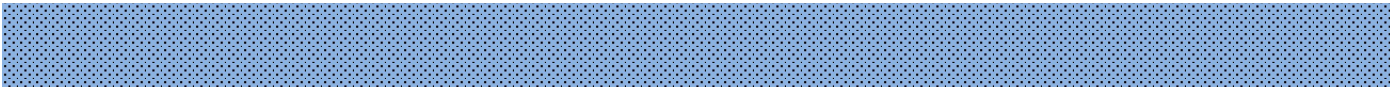
1 2 3



1bit Fan speed 1 , Fan speed 2 Fan speed 3 k
1 0 k
ON/OFF k



1bit Fan speed Up/Down 1 0
k
3
k
1
3 k



k
speed1 OFF
k
k



k
k
!

k

k

k

k

k

k

k

k

k

OFF

k

1/2/3

2

3

2

k

k

k

1 65535

k

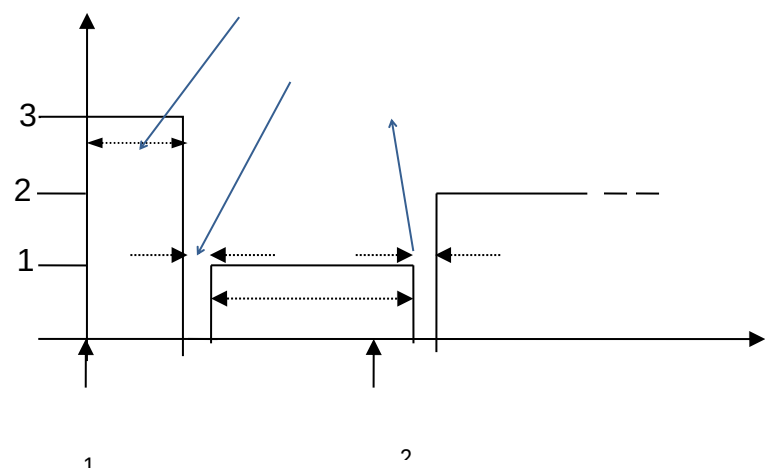
k

3

3

1

2



1

3

1

1

2

2

k

5.21

Auto. operation function

Enable

5.22

k

k

PI

k

4

k

Input & LED & IP General	Auto.operation on object value	☐ 0=Auto/1=Cancel ☒ 1=Auto/0=Cancel
Output General	State of Auto.operation after startup	☒ Disable auto.operation ☐ Enable auto.operation
Temperature	Automatically enable auto.operation	☐ No ☒ Yes
Logic & Time & Scene Group	Enable auto.operation after [10..6000] min	100
HVAC General	Threshold value OFF<->speed 1 [1..255] (For 2 point, it's Tem.difference*0.1°C)	80
Setpoint	Threshold value speed 1<->speed 2 [1..255] (For 2 point, it's Tem.difference*0.1°C)	150
Fan	Threshold value speed 2<->speed 3 [1..255] (For 2 point, it's Tem.difference*0.1°C)	200
Fan: Auto. operation		
Fan: Status	Hysteresis value is threshold value in +/- [0..50] (For 2 point, it is unused)	5
HVAC-Scene	Minimum time in fan speed [0..65535]*s	10
	Limitation function	☐ Disable ☒ Enable
	Fan with limitation 1	Unchange
	Fan with limitation 2	1,OFF
	Fan with limitation 3	2,1
	Fan with limitation 4	3,2,1

k

Fan Automatic ON/OFF

0

Fan Automatic ON/OFF

1

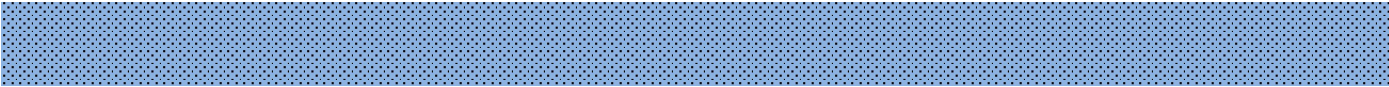
0

k



k

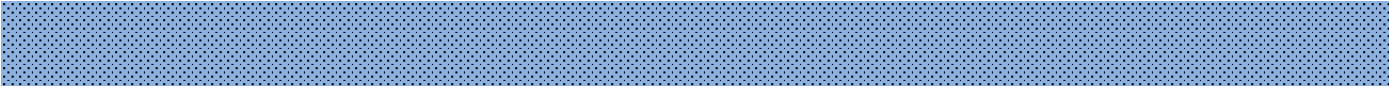
k



k

k

k



k

10..6000



1

1, 255

1

k

k

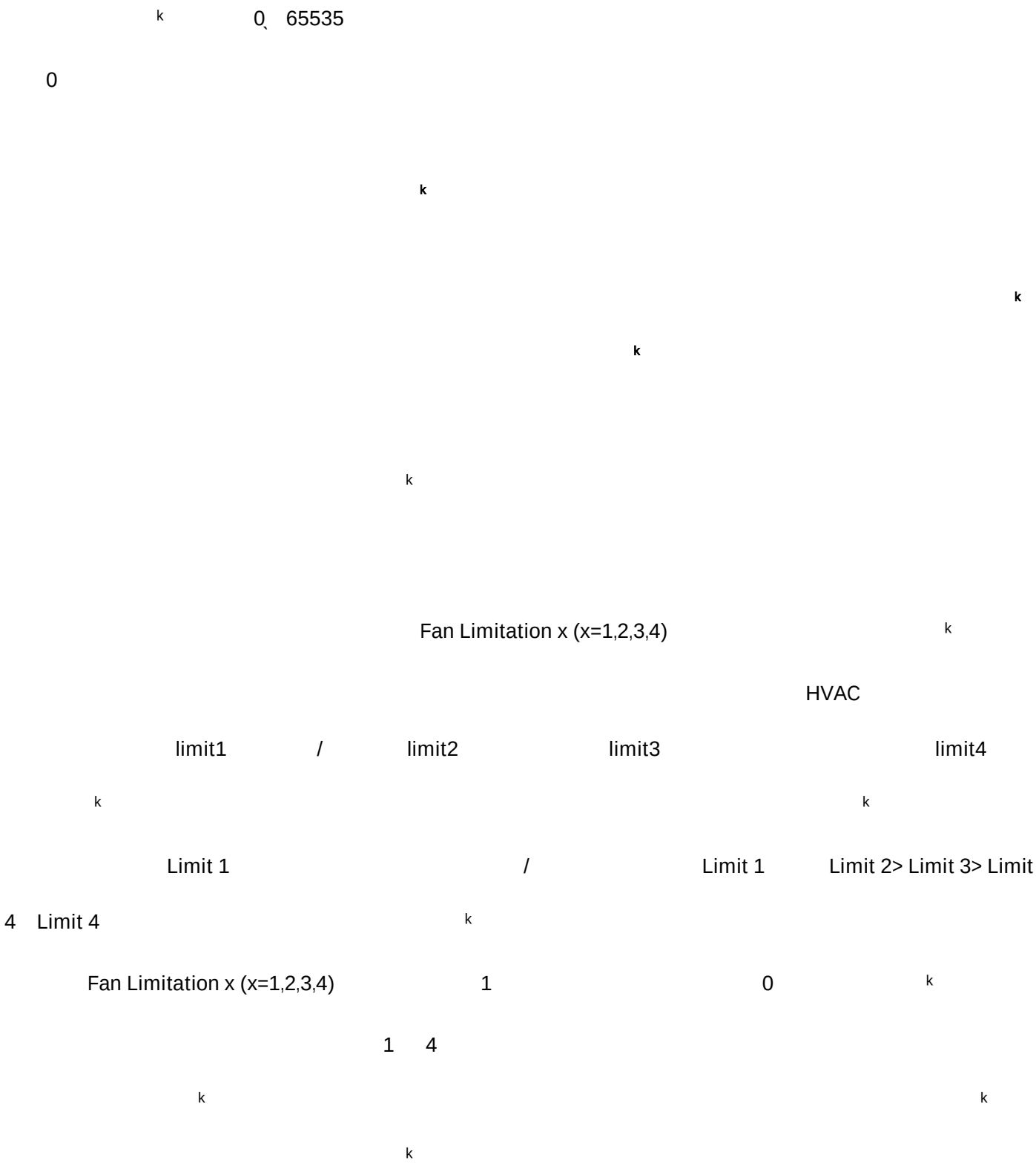
k

k

k

k

k



k

k

k

k

• •

k

Disable

Unchanged

1 1

1, off 1

2 2

2, 1 1 2

2, 1, off 1 2

3

3

3, 2

3 2

3, 2, 1

1 2 3

off

k

Fan status

5.23

k

Input & LED & IP General

Output General

Temperature

Logic & Time & Scene Group

HVAC General

Setpoint

Fan

Reply mode of Obj."Status Fan ON/OFF"
1bit function

Reply mode of Obj."Status Fan Automatic"
1bit function

Reply mode of Obj."Status fan speed x"
1bit function

Reply mode of Obj."Status fan speed "
1byte function

Object value for Status Fan speed 1
[1..255]

Object value for Status Fan speed 2
[1..255]

Object value for Status Fan speed 3
[1..255]

Respond after change

Respond after change

Respond after change

Respond after change

84

168

255

Fan: Auto. operation

k

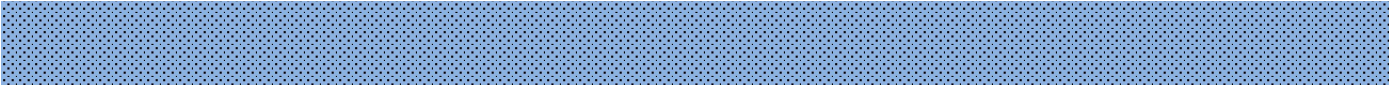
Status Fan ON/OFF

Status Fan

ON/OFF

Status Fan ON/OFF

k



k

Status Automatic

1

0

k

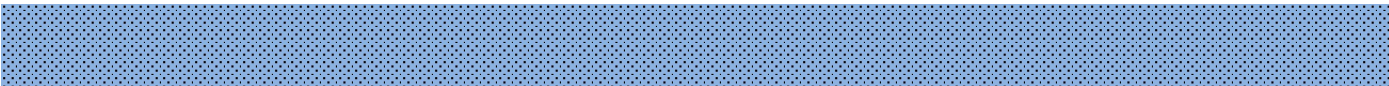
Status

Automatic

Status Automatic

Status Automatic

k



k

1bit

Status Fan speed 1

Status Fan speed 2

Status

Fan speed 3

k

Status

Automatic

Status

Automatic

Status Automatic

k



k 1bit Status Fan speed 1 ! Status Fan speed 2 Status

Fan speed 3 k

k



Status fan speed 1byte

k

k



k 1..255

0 k

k

k

k

2 ! 3 4 k

/

k

k

k

k

!

/

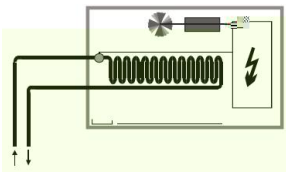
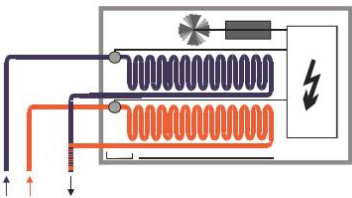
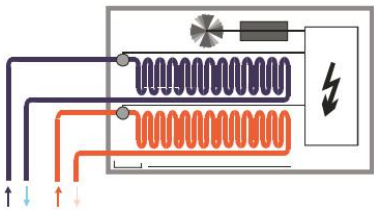
k

k

k

/

k



“Heat valve (Relay)” “Cool valve (Relay)”

5.24 5.25

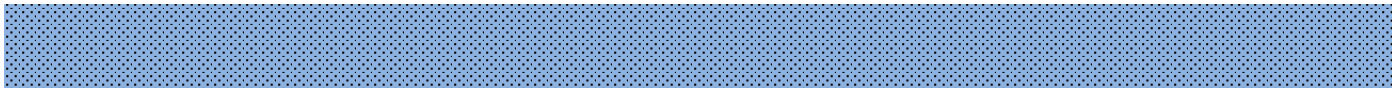
/

/

k

Input & LED & IP General	Valve control mode	☐ 2 state-ON/OFF ☒ Continous,PWM
Output General	Valve type	☐ Normally opened ☒ Normally closed
Temperature	Controller use PI control method	<--Attention
Logic & Time & Scene Group	When power failure, valve position	Unchange
	PWM cycle time[60..3000]s	120
HVAC General	Valve purge function	☐ Disable ☒ Enable
	Duration of valve purge time[1..255] *min	10
Heat valve (Relay)	Automatic valve purge	☐ Disable ☒ Enable
	Purge Cycle in weeks[1..12]	5
	Reply mode of Obj.*status of valve purge* 1bit function	Respond after change
	"Disable Heat" object function	☐ Disable ☒ Enable
	Trigger object value	☒ 0=Disable/1=Enable ☐ 1=Disable/0=Enable
	Reply mode of Obj.*status of valve position* 1bit function	Respond after change

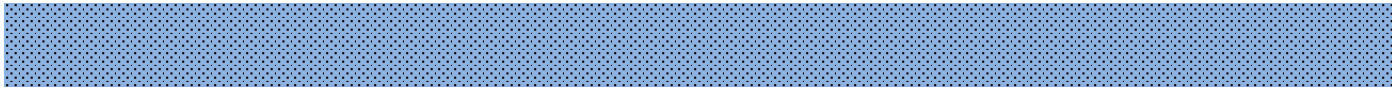
Input & LED & IP General	Valve control mode	☐ 2 state-ON/OFF ☒ Continous,PWM
Output General	Valve type	☐ Normally opened ☒ Normally closed
Temperature	Controller use PI control method	<--Attention
Logic & Time & Scene Group	When power failure, valve position	Unchange
	PWM cycle time[60..3000]s	120
HVAC General	Valve purge function	☐ Disable ☒ Enable
Setpoint	Duration of valve purge time[1..255] *min	10
Heat valve (Relay)	Automatic valve purge	☐ Disable ☒ Enable
Cool valve (Relay)	Purge Cycle in weeks[1..12]	5
Fan	Reply mode of Obj.*status of valve purge* 1bit function	Respond after change
Fan: Status	"Disable Cool" object function	☐ Disable ☒ Enable
	Trigger object value	☒ 0=Disable/1=Enable ☐ 1=Disable/0=Enable
HVAC-Scene	Reply mode of Obj.*status of valve position* 1bit function	Respond after change



k

PWM

k



k

k

” ”

2 state-ON/OFF

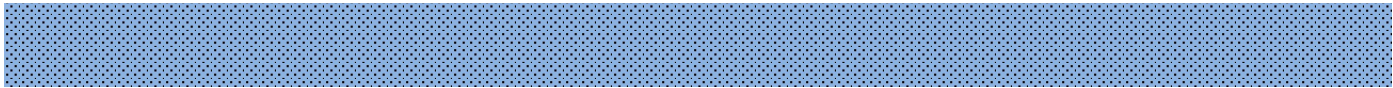
k

” ”

Continuous, PWM

PI

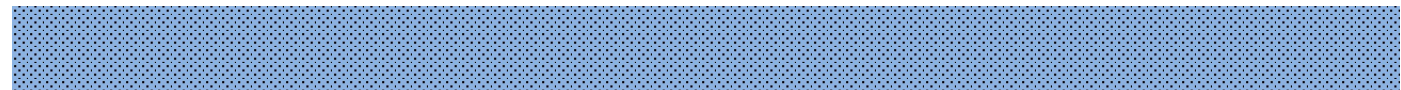
k



k

k

, ,		,	
	Continuous, PWM	PWM	k
			k
			60...3000s



	1bit	“Trigger valve purge”	k
--	------	-----------------------	---

, ,			
	k	1...255min	
		/	k

, ,			
		k	
			k

, ,			
			k

	1...12
--	--------

, ,			
-----	--	--	--

k

“Status of

valve purge”

vÚ

“Status of valve purge”

k

Ëð

Q` •

“*

”

8α \

'ó

BE, E
bit

“Disable, Heat/Cool”

/&:

k

’ □

/

И! Ъ

еО Ъ

∇ q l' √



“Status of

valve position”

“Status of valve position”

k

Continuous, PWM

	relay opened“Status of valve position”“0” relay closed“1” 0V“Status of valve position”“0”10V “1” k
	relay closed“Status of valve position”“0” relay opened“1” 0V~10V10V“Status of valve position”“1” 10V“0” k

“Heat valve (0-10V)”

“Cool valve (0-10V)”

5.26

5.27

/

0-10V

/

5.12.1k

Input & LED & IP General

Output General

Temperature

Logic & Time & Scene Group

HVAC General

Setpoint

Valve control mode

Valve type

Controller use PI control method

Valve adjustment

Min. controller output for closed valve [0..100]%

Max. controller output for fully opened valve[0..100]%

Lower limit of active valve opening range [0..100]%

Upper limit of active valve opening range [0..100]%

Valve purge function

"Disable Heat" object function

Reply mode of Obj."status of valve position" 1bit function

2 state-10V/0V

Continuous control

Normally opened

Normally closed

<--Attention

Disable

Enable

0

100

0

100

Disable

Enable

Disable

Enable

Respond after change

Heat valve (0-10V)

Cool valve (0-10V)

Fan

Fan: Auto. operation

Fan: Status

Input & LED & IP General

Output General

Temperature

Logic & Time & Scene Group

HVAC General

Setpoint

Valve control mode

Valve type

Controller use PI control method

Valve adjustment

Min. controller output for closed valve [0..100]%

Max. controller output for fully opened valve[0..100]%

Lower limit of active valve opening range [0..100]%

Upper limit of active valve opening range [0..100]%

Valve purge function

"Disable Cool" object function

Reply mode of Obj."status of valve position" 1bit function

2 state-10V/0V

Continuous control

Normally opened

Normally closed

<--Attention

Disable

Enable

0

100

0

100

Disable

Enable

Disable

Enable

Respond after change

Heat valve (0-10V)

Cool valve (0-10V)

Fan

Fan: Auto. operation

Fan: Status

k

” ”

” ”

” ”

” ”

“Valve adjustment”

“Enable”

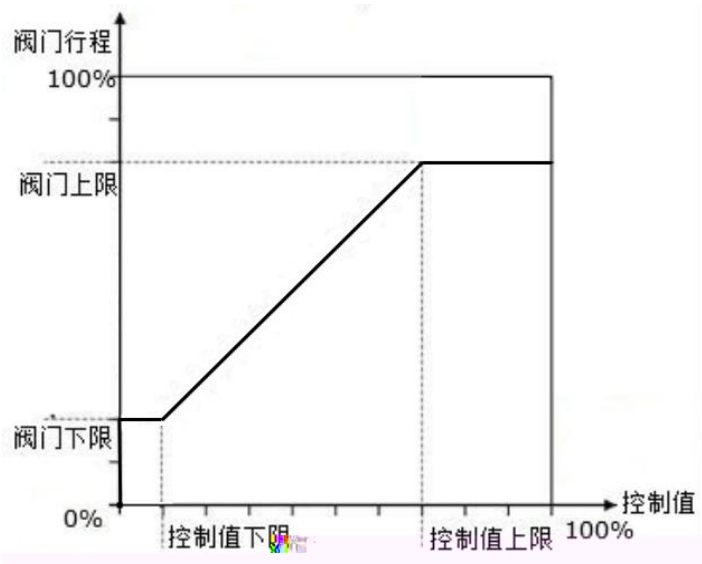
k

0...100 [%]

k

10%20%70%

80%



Scene

5.28

5.29

HVAC

k

HVAC

8

k

k

Input & LED & IP General	Scene function	☐ Disable ☒ Enable
Output General	1> Assignment scene No. (1..64,0=inactive)	0
Temperature	HVAC Mode	Standby
Logic & Time & Scene Group	Fan Speed(For one level,all 1/2/3 mean on)	Unchange
HVAC General	2> Assignment scene No. (1..64,0=inactive)	0
Setpoint	HVAC Mode	Comfort
Heat valve (0-10V)	Fan Speed(For one level,all 1/2/3 mean on)	Unchange
Cool valve (0-10V)	3> Assignment scene No. (1..64,0=inactive)	0
Fan	HVAC Mode	Night
Fan: Auto. operation	Fan Speed(For one level,all 1/2/3 mean on)	Unchange
Fan: Status	4> Assignment scene No. (1..64,0=inactive)	0
HVAC-Scene	HVAC Mode	Comfort
	Fan Speed(For one level,all 1/2/3 mean on)	Unchange

Input & LED & IP General	Scene function	☐ Disable ☒ Enable
Output General	1> Assignment scene No. (1..64,0=inactive)	0
Temperature	Control Value(For 1bit,value>0 means on)	0
Logic & Time & Scene Group	Fan Speed(For one level,all 1/2/3 mean on)	Unchange
HVAC General	Heat/Cool(only used for 4-pipes of bus controller)	Unchange
Heat valve (0-10V)	2> Assignment scene No. (1..64,0=inactive)	0
Cool valve (0-10V)	Control Value(For 1bit,value>0 means on)	0
Fan	Fan Speed	

64k1-64 is active, 0 is no assignment.

k

k

HVACk

k0...255

0k

103

HVAC

Heating and Cooling

/

k

HVACk

			’ ’	5.11.1.1
			’ ’	5.11.2.1
			’ ’	kPIk 5.11.1.1
			’ ’	kPIk 5.11.2.1
				01Control valuek
				kControl valuek 5.11.1.1
				013Control valuek
				kControl valuek 5.11.2.1

Logic X

5.315.32

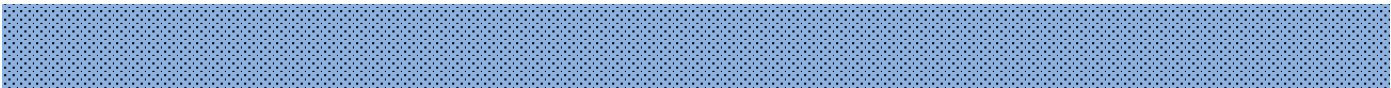
X

8

k

Input & LED & IP General	Function of Logic 1	AND
Output General	Input 1	1Bit
Temperature	Input 2	1Bit Inverted
Logic & Time & Control Group	Input 3	1Byte
Logic 1	Threshold value	127
	Input 3 is '1',when the Input value is	>=Threshold value
	Input 4	Disconnect
	Input 5	Disconnect
	Input 6	Disconnect
	Input 7	Disconnect
	Input 8	Disconnect
	Result is inverted	☒ No ☐ Yes
	Read Input after power voltage recovery	☒ No ☐ Yes
	Output send when	☒ Receiving a input ☐ Change of Result
	Send Delay[0..30000]*0.1s	0

Input & LED & IP General	Function of Logic 1	Converter
Output General	Format convert type	8x1Bit-->1x1Byte



X

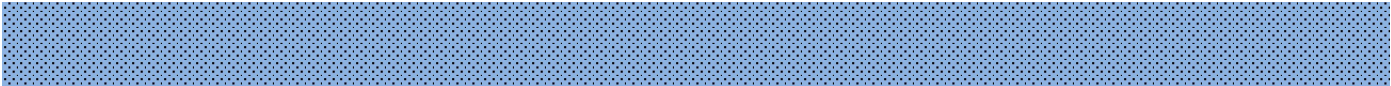
k

AND/OR/XOR

k

AND/OR/XOR

5.31



Input x

k

k

” ”

0..255

” ”

1

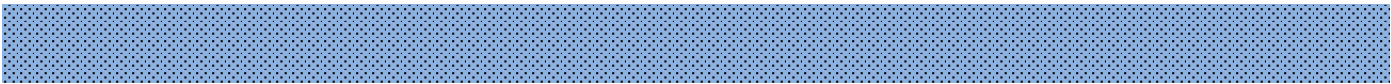
0 k

>= Threshold value:

1

0 k

k

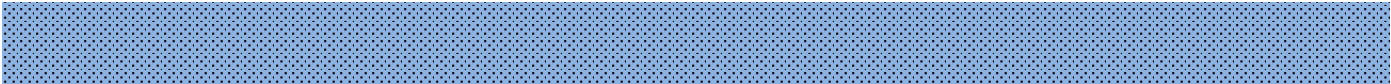


k

k



k



k

k

k



k

0..30000

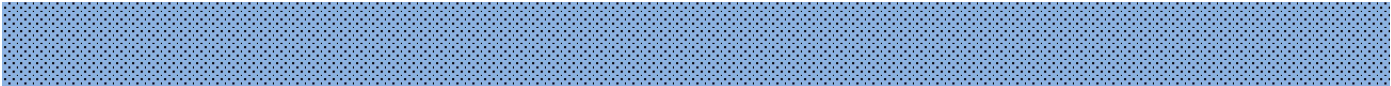
0

k

Converter

5.32

k



k

Time X

5.33

X

k

!

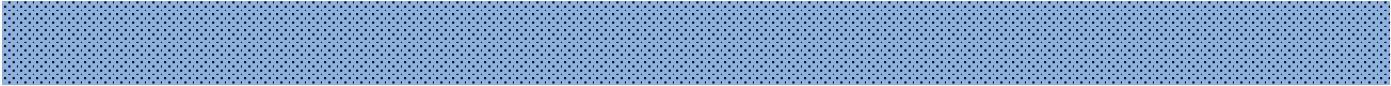
k

!

k

k

Input & LED & IP General	Object type for trigger value	☒ 1Bit ☐ 1Byte
Output General	The trigger mode	Trigger with '1'
Temperature	Object type for output value	☒ 1Bit ☐ 1Byte
Logic & Time & Scene Group	Output mode	Flashing
Time 1	Value 1	0
	Value 2	0
	Value 1 Duration[0..6000]*1s	60
	Value 2 Duration[0..6000]*1s	60



k

• •

1Bit

k

k

• •

Object type for trigger value

1Byte

k

0..255

• •

Object type for trigger value

1Byte

k

"

k

k

Scene Group X

5.34

8

8

k

Input & LED & IP General	Datatype of Scene Output 1	18Bit
Output General	Transmit delay[0..36000]*0.1s	0
Temperature	Datatype of Scene Output 2	18Bit
Logic & Time & Scene Group	Transmit delay[0..36000]*0.1s	0
Scenes Group 1	Datatype of Scene Output 3	18Bit
G1: Scene 1	Transmit delay[0..36000]*0.1s	0
G1: Scene 2	Datatype of Scene Output 4	18Bit
	Transmit delay[0..36000]*0.1s	0

Input & LED & IP General	Name of the scene (max.50 characters)	G1: Scene 1
Output General	Extension of Scene No.[1..64, 0: Disable]	1
Temperature	Scene Output 1 (0..1)	☒ 0 ☐ 1
Logic & Time & Scene Group	Scene Output 2 (0..255)	0
Scenes Group 1	Scene Output 3 (0..100%)	0
	Scene Output 4 (0..1)	☒ 0 ☐ 1

Scene Output 5 (0..1) ☐ 0 ☒ 1

Scene Output 6 (0..1) ☐ 0 ☒ 1

Scene Output 7 (0..1) ☐ 0 ☒ 1

Scene Output 8 (0..1) ☐ 0 ☒ 1

x k

• •

x : 0..36000.

0 k

50 k

k 0..64 0= k

x k 1bit 0..1/1byte 0..255/ 1byte 0..100%

k

k

k

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
271	Temperature	Actual temperature output			2 bytes	C	R	-	T	-	temperature (°C)	Low
272	Temperature	Local sensor error output			1 bit	C	R	-	T	-	alarm	Low
274	Temperature	Temp correction (-128..127) * 0.1			1 byte	C	-	W	-	-	counter/pulses (-128..127)	Low
275	General	In operation			1 bit	C	R	-	T	-	switch	Low
273	Temperature	External sensor			2 bytes	C	-	W	T	U	temperature (°C)	Low

PT1000					k
PT1000					k
					k
PT1000					k
1					k

	Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
1	1	UI input 1	Switch			1 bit	C	-	W	T	-	switch	Low
2	2	UI input 1	Switch-long			1 bit	C	-	W	T	-	switch	Low
3	3	UI input 1	Enable communication			1 bit	C	-	W	-	-	enable	Low

"Switch Sensor"					
ON ! OFF ! TOGGLE k "1" "0" k					
"Distinction between long and short operation" "yes"					
ON ! OFF ! TOGGLE k "1"					
"0" k					
/ k k					
k ("Disable communication" ,)					

“Dimming functionality” “Dimming and switching”					
ON ! OFF ! TOGGLE k “1” “0” k					
k “Dimming and switching” “only dimming”					
/					

6.4

k

6.5 k

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
1	UI input 1	Shutter UP/DOWN			1 bit	C	-	-	-	-	switch	Low

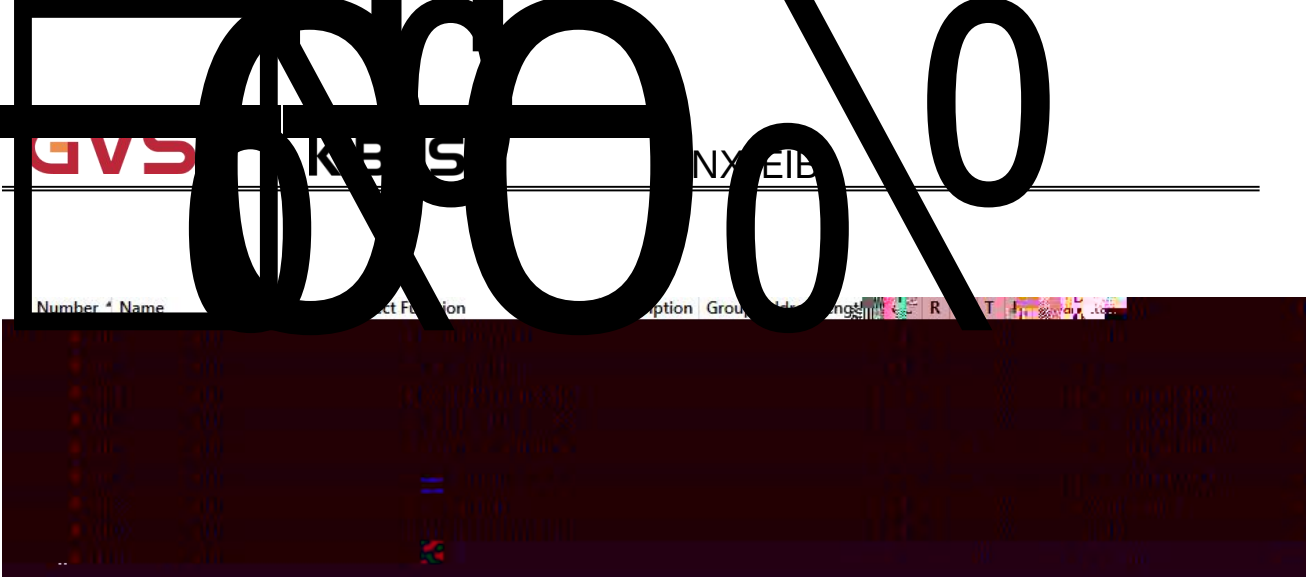
/ "1" "0" k					
/ "1" / "0" / k					

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
22	LED 1	Status			1 bit	C	-	W	-	-	switch	Low
23	LED 2	Status			1 bit	C	-	W	-	-	switch	Low
24	LED 3	Status			1 bit	C	-	W	-	-	switch	Low
25	LED 4	Status			1 bit	C	-	W	-	-	switch	Low
26	LED 5	Status			1 bit	C	-	W	-	-	switch	Low

22	LED X	Status	1bit/1byte	C,W	1.001 DPT_Switch 5.001 DPT_percentage 0..100% 5.010 DPT_counter pulses 0..255
1bit/1byte LED k					

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data	Priority
27	Output 1	Switch			1 bit	C	-	W	-	-	switch	Low
28	Output 1	Switch status			1 bit	C	R	-	T	-	switch	Low
29	Output 1	Scene			1 byte	C	-	W	-	-	scene control	Low

“1”“0”																															
k																															
k k																															
“After read only”																															
“After change and after read”																															
k																															
8bit k k																															
8bit	k																														
8bit	(	)	FXNNNNNN																												
	F:	“0”	“1”																												
	X	0																													
	NNNNNN	0...63	k																												
<table><tr><td></td><td></td></tr><tr><td>0</td><td>1</td></tr><tr><td>1</td><td>2</td></tr><tr><td>2</td><td>3</td></tr><tr><td>...</td><td></td></tr><tr><td>63</td><td>...</td></tr><tr><td></td><td>64</td></tr><tr><td>128</td><td>1</td></tr><tr><td>129</td><td>2</td></tr><tr><td>130</td><td>3</td></tr><tr><td>...</td><td></td></tr><tr><td>191</td><td>...</td></tr><tr><td></td><td>64</td></tr></table>								0	1	1	2	2	3	...		63	...		64	128	1	129	2	130	3	...		191	...		64
0	1																														
1	2																														
2	3																														
...																															
63	...																														
	64																														
128	1																														
129	2																														
130	3																														
...																															
191	...																														
	64																														
1~64	0~63 k			1	“Scene”																										
				0	k																										

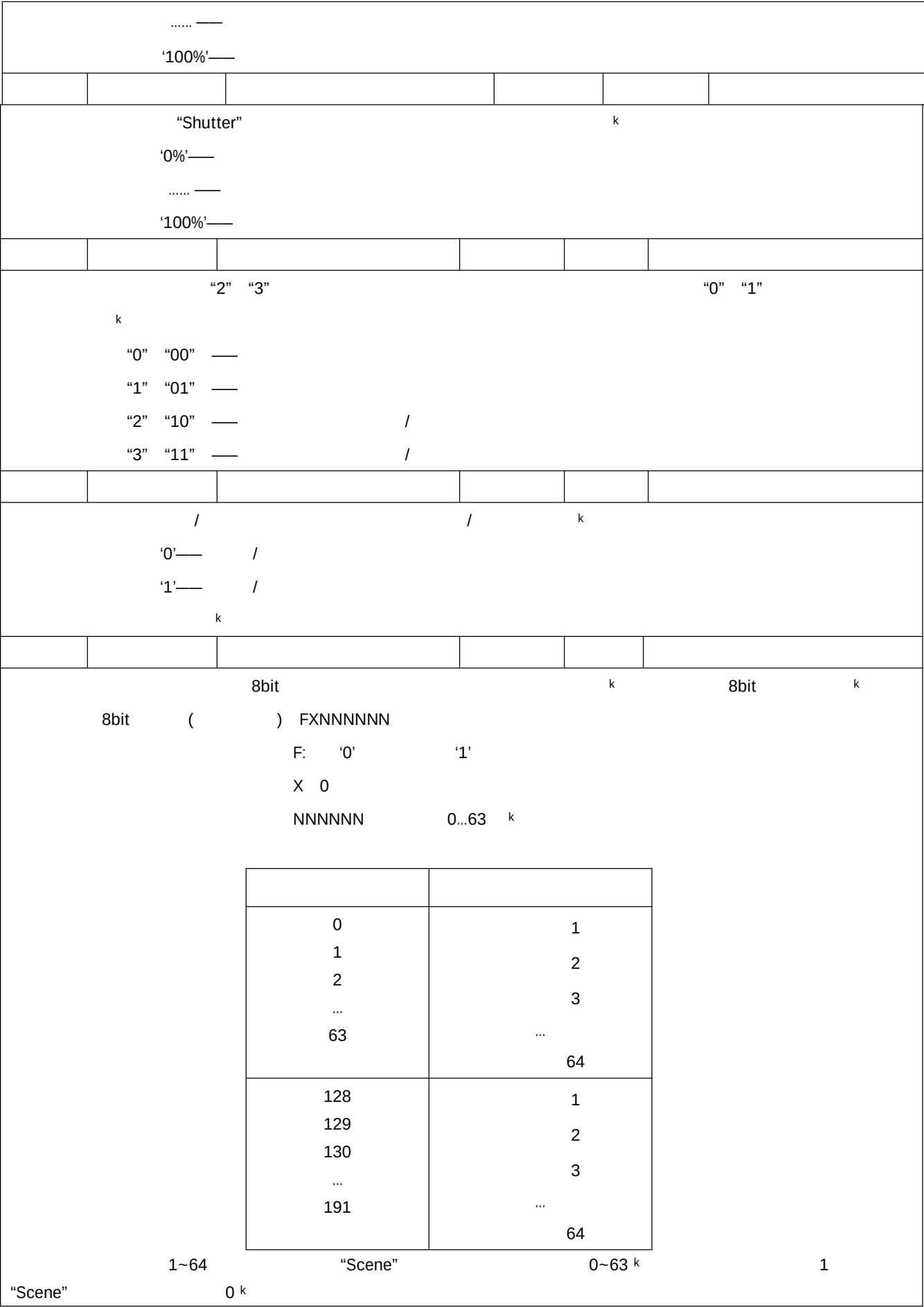


“0” / “1” / k
‘0’——
‘1’——

Shutter
k
Blind
k

‘0’—— /
‘1’—— /
、
/ k “Shutter”
“Louvre position[0...100%]”
k
‘0%’——
..... ——
‘100%’——
、
“Shutter” □ □ □ □

0% k



k "1" "0"					
k 0 "1"					
0 "0" k					
1~7 1					
7 0 9~15					
9	15		8	k	
	/	255	128	64	32
	/	255	128	64	32
0					
"0" k					
k					
8bit k k					
8bit () FXNNNNNN					
F: "0" "1"					
X					

		NNNNNN		0...63 k	
		1~64 k		"Scene"	
		0		1 k	
		1		0~63 k	
		2		1	
		...		2	
		63		3	
				...	
				64	
		128		1	
		129		2	
		130		3	
		...		...	
		191		64	

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
250	HVAC	Switch Heat/Cool mode			1 bit	C	-	W	-	-	cooling/heating	Low
251	HVAC mode	Comfort mode			1 bit	C	-	W	-	-	enable	Low
252	HVAC mode	Night mode			1 bit	C	-	W	-	-	enable	Low
253	HVAC mode	Frost/heat protection mode			1 bit	C	-	W	-	-	enable	Low
254	HVAC mode	Standby mode			1 bit	C	-	W	-	-	enable	Low
262	HVAC Status	Comfort mode			1 bit	C	R	-	T	-	enable	Low
263	HVAC Status	Night mode			1 bit	C	R	-	T	-	enable	Low
264	HVAC Status	Frost/heat protection mode			1 bit	C	R	-	T	-	enable	Low
265	HVAC Status	Standby mode			1 bit	C	R	-	T	-	enable	Low
266	HVAC Status	Heating/cooling mode			1 bit	C	R	-	T	-	cooling/heating	Low
267	HVAC Status	Status of operation			1 byte	C	R	-	T	-		Low
268	Input setpoint	Base setpoint			2 bytes	C	-	W	-	-	temperature (°C)	Low
269	Input setpoint	Setpoint adjustment			2 bytes	C	-	W	-	-	temperature (°C)	Low
270	Output setpoint	Instantaneous setpoint			2 bytes	C	R	-	T	-	temperature (°C)	Low
250	HVAC	Heat mode enable			1 bit	C	-	W	-	-	enable	Low
251	HVAC mode	HVAC mode			1 byte	C	-	W	-	-	HVAC mode	Low
258	HVAC	Cooling mode enable			1 bit	C	-	W	-	-	enable	Low
262	HVAC Status	HVAC mode			1 byte	C	R	-	T	-	HVAC mode	Low
247	HVAC	Scene			1 byte	C	-	W	-	-	scene number	Low



HVAC					
1~64		0~63 k		1	
/					
		0		1 k	
/					
		k		1	
4 1bit (251,252,253,254) 1 1byte (HVAC mode) k					
1bit	251	k	252	k	253
	1		0	k	4 1bit
(Frost/heat protection mode)>		(Comfort mode)=		(Night mode)=	
252	253			k	(Standby mode) 251 !
1byte no:0:					
1:					
2:					
3:					
4:					
5-255:					

HVAC

251,252,253,254 k

/

“0”

“1”

k

HVAC

DPT_StatusHVAC: B6N2

□ □□□□□

‘

1 ^

\$

& .

`i

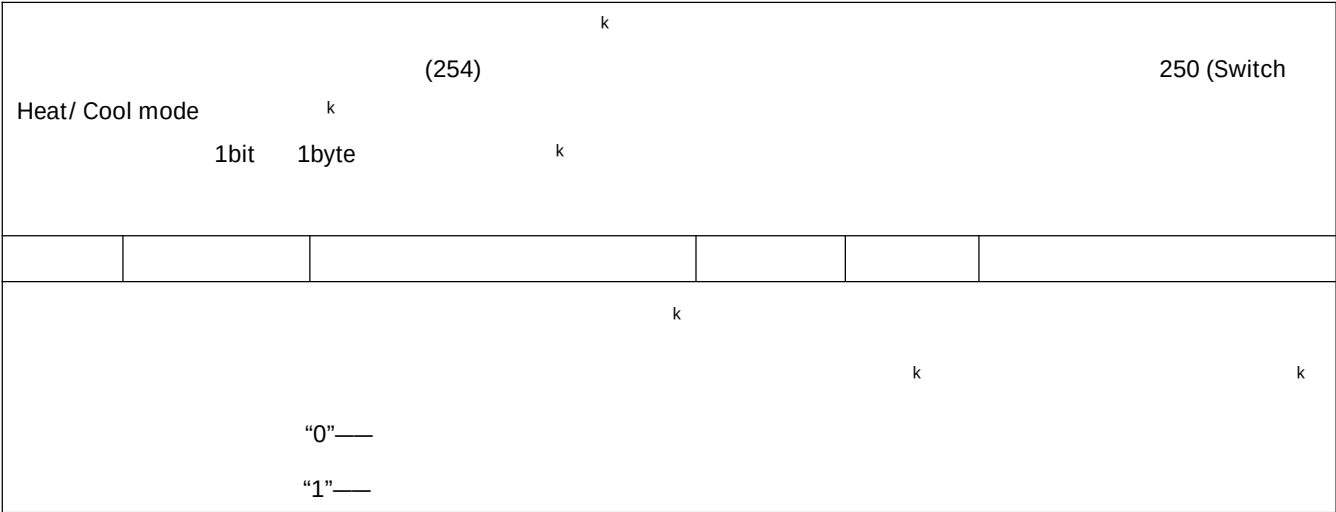
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F(9)9D19

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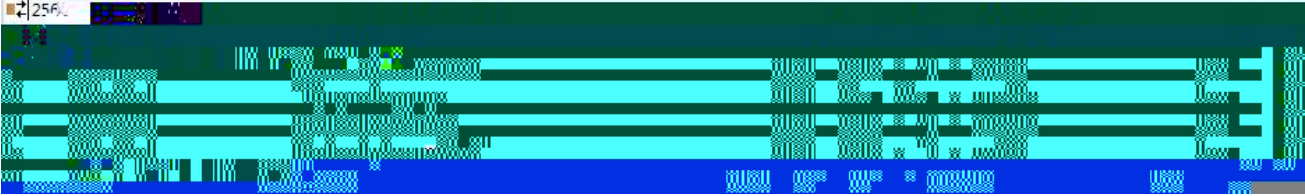
m



1bit k “0” — “1” — 1byte k 1 — 1 — 1 2 — 2 3 — 3					
k 1 1~3 ON k 1~3 OFF k “0” — “1” — 1					
231					
231					
k k “0” — “1” —					
k k “0” — “1” —					

	k		
		k	Object value for Status Fan speed 1/2/3 [1..255]
"0"	k		
		k	
	1	k	
"0" —		1	
"1" —		1	
237			
237			
	k		
		k	
			k
	k		
"0 Auto/1=Cancel"			
"0" —			
"1" —			
"1 Auto/0=Cancel"			
"0" —			
"1" —			
230 Fan speed			
231 —			

“1”1 “0”k 11 “Fan with limitation 1”k “0”——1 “1”——1 1k					
242					
242					
242					
k “Behaviour on Forced operation is” / “Limitation on forced operation” 1-4 k “0 Force/1=Cancel” “0”—— “1”—— “1 Force/0=Cancel” “1”—— “0”——					

Number	Name ▾	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
255	Valve Heat	Trigger valve purge			1 bit	C	-	W	-	-	enable	Low
256												

k0%					
248 k					
k0 " "1 " "					
k k0 " "1 " "					
k"0"—"1"—					

	Number	Name	Object Function	Description	Group	Address	Length	C	R	W	T	U	Data Type	Priority
	150	Logic 1	Input 1				1 bit	C	-	W	T	U	boolean	Low
	151	Logic 1	Input 2				1 bit	C	-	W	T	U	boolean	Low
	152	Logic 1	Input 3				1 byte	C	-	W	T	U	counter pulses (0..255)	Low
	153	Logic 1	Input 4				1 bit	C	-	W	T	U	boolean	Low
	154	Logic 1	Input 5				1 bit	C	-	W	T	U	boolean	Low
	155	Logic 1	Input 6				1 bit	C	-	W	T	U	boolean	Low
	156	Logic 1	Input 7				1 bit	C	-	W	T	U	boolean	Low
	157	Logic 1	Input 8				1 bit	C	-	W	T	U	boolean	Low
	158	Logic 1	Logic Result				1 bit	C	-	-	T	-	boolean	Low

Input x k					
k					

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
150	Logic 1	Input 1bit-bit0			1 bit	C	-	W	-	U	boolean	Low
151	Logic 1	Input 1bit-bit1			1 bit	C	-	W	-	U	boolean	Low

2x1bit --> 1x2bit 2 1bit 2bit Input bit1=1, bit0=0--> Output 2bit=2

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
152	Logic 1	Input 1byte			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
153	Logic 1	Output 1bit-bit0			1 bit	C	-	W	-	U	boolean	Low
154	Logic 1	Output 1bit-bit1			1 bit	C	-	W	-	U	boolean	Low
155	Logic 1	Output 1bit-bit2			1 bit	C	-	W	-	U	boolean	Low
156	Logic 1	Output 1bit-bit3			1 bit	C	-	W	-	U	boolean	Low
157	Logic 1	Output 1bit-bit4			1 bit	C	-	W	-	U	boolean	Low
158	Logic 1	Output 1bit-bit5			1 bit	C	-	W	-	U	boolean	Low
159	Logic 1	Output 1bit-bit6			1 bit	C	-	W	-	U	boolean	Low
160	Logic 1	Output 1bit-bit7			1 bit	C	-	W	-	U	boolean	Low

8x1bit --> 1x1byte : 8 1bit 1byte Input bit2=1, bit1=1, bit0=1, 0--> Output

1byte=7 k

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
150	Logic 1	Input 1byte			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
158	Logic 1	Output 2byte			2 bytes	C	-	-	T	-	pulses	Low

1x1byte --> 1x2byte 1byte 2byte Input 1byte=125--> Output 2byte=125,

k

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
150	Logic 1	Input 2byte-low			2 bytes	C	-	W	-	U	pulses	Low
151	Logic 1	Input 2byte-high			2 bytes	C	-	W	-	U	pulses	Low
158	Logic 1	Output 4byte			4 bytes	C	-	-	T	-	counter pulses (unsigned)	Low

2x1byte --> 1x2byte 2 1byte 2byte Input 1byte-low = 255 (\$FF), Input 1byte-high

= 100 (\$64) --> Output 2byte = 25855 (\$64 FF)

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
150	Logic 1	Input 2byte-low			2 bytes	C	-	W	-	U	pulses	Low
151	Logic 1	Input 2byte-high			2 bytes	C	-	W	-	U	pulses	Low
158	Logic 1	Output 4byte			4 bytes	C	-	-	T	-	counter pulses (unsigned)	Low

2x2byte --> 1x4byte 2 2byte 4byte Input 2byte-low = 65530 (\$FF FA), Input

2byte-high = 32768 (\$80 00)--> Output 2byte = 2147549178 (\$80 00 FF FA)

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
150	Logic 1	Input 1byte			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
151	Logic 1	Output 1bit-bit0			1 bit	C	-	-	T	-	boolean	Low
152	Logic 1	Output 1bit-bit1			1 bit	C	-	-	T	-	boolean	Low
153	Logic 1	Output 1bit-bit2			1 bit	C	-	-	T	-	boolean	Low
154	Logic 1	Output 1bit-bit3			1 bit	C	-	-	T	-	boolean	Low
155	Logic 1	Output 1bit-bit4			1 bit	C	-	-	T	-	boolean	Low
156	Logic 1	Output 1bit-bit5			1 bit	C	-	-	T	-	boolean	Low
157	Logic 1	Output 1bit-bit6			1 bit	C	-	-	T	-	boolean	Low
158	Logic 1	Output 1bit-bit7			1 bit	C	-	-	T	-	boolean	Low

1x1byte --> 8x1bit 1 1byte 8 1bit Input 1byte=200 --> Output bit0=0, bit1=0, bit2=0,

bit3=1, bit4=0, bit5=0, bit6=1, bit7=1

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
150	Logic 1	Input 2byte			2 bytes	C	-	W	-	U	pulses	Low
151	Logic 1	Output 1byte			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
152	Logic 1	Output 1byte-high			1 byte	C	-	-	T	-	counter pulses (0..255)	Low

1x2byte --> 2x1byte

	Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
	186	Time 1	Trigger value			1 byte	C	-	W	-	-	counter pulses (0..255)	Low
	187	Time 1	Output value			1 byte	C	-	-	T	-	counter pulses (0..255)	Low

--	--	--	--	--	--	--	--	--	--	--	--	--	--

186

Time X

Trigger value

/

22-25

3

15&16&17 2

15&16

1

15

3

15&16&17

... -- 1 -- 2 -- 3 -- -- ... k

k

15&16&17

k

0-10V

28

28

... -- 1 -- 2 -- 3 -- -- ...

18

k

0-10V

29

k

19

k

0-10V

30

k

/

/

k

26-30

k

k

k